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THE NORTH AMERICAN LARRIDÆ.

BY WILLIAM J. FOX.

The following paper is compiled chiefly for the sake of bringing to light some of the numerous new species contained in the collection of the American Entomological Society. In the arrangement of the genera I have followed that of Kohl, with one exception: the removing of the genus *Lyroda* from among the true Larriens—as I think the regularly formed ocelli are sufficient to justify such a course. The term Larridæ is used simply for the want of another name, as the Bembecidæ, Larridæ and Nyssonidæ seem to merge into one another and are not entitled to family distinction, the connecting links being formed in the genera *Neolarra* and *Bothynostethus*, the position of the latter genus being but a matter of opinion, as it seems to be as much related to *Alyson* as it does to *Dienoplus*, a new genus described herein, which shows the relation of *Bothynostethus* with the *Larridæ* more strongly than ever. It is true that the Bembecidæ offer better characters for their distinction from the Larridæ than do the Nyssonidæ; however, the discovery of *Neolarra*, with its combined Bembecid and Larrid characters, makes an almost complete merging of these three supposed families. I desire to express my thanks to Mr. Wm. H. Ashmead, Prof. C. V. Riley, Mr. J. A. Guignard, Mrs. Annie T. Slosson, Mr. J. Aldrich, Dr. W. A. Nason and T. D. A. Cockerell, all of whom have furnished specimens by means of which this article was possible. Our genera may be distinguished as follows:¹

- 1—Inner margins of eyes not emarginate; marginal cell with or without an appendiculation.....4
 - Inner margins of eyes emarginate; marginal cell without an appendiculation2
- 2—Anterior wings with three cubital cells; abdomen short, sessile...3
 - Anterior wings with two submarginal cells; abdomen long, clavate..... TRYPOXYLON.
- 3—Female without a pygidial area; marginal cell nearly as long as the three submarginal cells united; antennæ of ♂ not dentate PISON.

¹ In drawing up descriptions of the genera, I have used freely the descriptions in Kohl's paper.

- Female with a well developed pygidial area; marginal cell shorter than the first submarginal; antennæ of ♂ more or less dentate..... PISONOPSIS.
- 4—Anterior wings with but two submarginal cells; mandibles emarginate on outer margin; first and second submarginal cells each receiving a recurrent nervure.....MISCOPHUS.
- Anterior wings with three submarginal cells.....5
- 5—Second submarginal cell petiolate.....6
- Second submarginal cell not petiolate8
- 6—First and second submarginal cells each receiving a recurrent nervure; mandibles emarginate without; eyes converging toward the vertex.....PLENOCULUS.
- Both recurrent veins received by the second submarginal cell; mandibles not emarginate.....7
- 7—Antennæ long and slender; eyes strongly converging to the vertex; last dorsal segment of ♀ without a pygidium; ♂ unknown..... NITELIOPSIS.
- Antennæ rather short, subclavate; eyes diverging towards the vertex; last dorsal segments of both sexes with a pygidium..... BOTHYNOSTETHUS.
- 8—Marginal cell with an appendiculation, lanceolate or truncate.....9
- Marginal cell without an appendiculation, lanceolate; inner eye margins almost parallel; middle tibiæ with two spurs..... DIENOPLUS.
- 9—Ocelli round, well developed10
- Hind ocelli distorted, more or less obsolete.....12
- 10—Middle tibiæ armed with two spurs at apex.....11
- Middle tibiæ with but one spur; mandibles distinctly emarginate on outer margin; second submarginal cell receiving both recurrent nervures.....LYRODA.
- 11—Eyes of the ♀ converging towards the top, those of the ♂ touching on the vertex; marginal cell more than twice longer than broad; second submarginal cell receiving both recurrent nervures..... ASTATUS.
- Eyes of both sexes converging towards the top, those of the ♂ not touching on the vertex; marginal cell not twice as long as broad; first and second submarginal cells each receiving a recurrent nervure..... DIPLOPLECTRON.
- 12—Front and face more or less raised along the eye margins.....13
- Front and face not at all raised along the inner eye margins.....15
- 13—Mandibles armed with one or two teeth within.....14
- Mandibles not dentate within; outer side of anterior tibiæ armed with strong spines; pygidium (♀) not pubescent.....LARRA.
- 14—Pronotum drawn under the dorsulum, especially at the sides; metanotum longer than the dorsulum; anterior femora of ♂ not emarginate near the base; pygidial area covered with a hoarfrost-like pile.....NOTOGONIA.

Pronotum not drawn under the dorsulum; metanotum shorter than the dorsulum; anterior femora of ♂ emarginate near the base as in *Tachysphex* and some species of *Tachytes*; pygidial area on apical portion with short, stiff hairs.....ANCISTROMMA.

15—Comb on anterior tarsi (♂) composed of stiff, tolerably short thorns; pygidial area entirely covered with pubescence; hind ocelli linear, hooked at upper end; fore femora of ♂ either emarginate or not emarginate near base.....TACHYTES.

Comb on anterior tarsi (♀) composed of very long, flexible spines or bristles; pygidial area naked; hind ocelli oval; fore femora (♂) always emarginate near the base.....TACHYSPEX.

PISONOPSIS Fox.

Pisonopsis Fox, Psyche, Nov. 1893, p. 553.

Form stout; sculpture coarse; head as broad or slightly broader than the thorax, in the ♂ it is distinctly broader; mandibles distinctly cut out on outer margin; eyes reaching to the base of mandibles, their inner margins converging a little towards the vertex and rather strongly emarginate at about the middle, in the ♂ they are but slightly emarginate; ocelli round, regular and distinct, placed in a triangle; antennæ ample, placed immediately behind the clypeus; shoulder tubercles not reaching to the tegulæ; metathorax a little shorter than the dorsulum; marginal cell long, but not reaching beyond the tip of third submarginal, obtuse at tip, without appendiculation; three submarginal cells, the first more than twice longer than the other two combined, the second petiolated, generally though not always, receiving both recurrent nervures, third submarginal narrow, wider below than at the top; discoidal vein confluent with the interno-medial vein; stigma short, truncate at tip; legs very feebly armed, the anterior tarsi without comb, middle tibiæ with a single strong spur at apex, tarsal claws entire; last dorsal segment of the ♀ with a distinct pygidial area, in the ♂ the last ventral segment roundly emarginate at apex.

This genus is distinguished from *Pison* by the emarginate mandibles, the last dorsal segment of ♀ with a pygidial area, by its more robust form and its coarse sculpture. From the other Larrid genera, that have the eyes emarginate i. e. *Aulacophilus* and *Trypoxylon*, the form of the abdomen will at once separate it. The male has the flagellum dentated, but this may be only a specific difference.

Pisonopsis clypeata Fox.

P. clypeata Fox, Psyche, Nov. 1893, p. 553. ♀ ♂.

♀.—Clypeus convex medially, with large, scattered punctures,

produced anteriorly into a strong medial tooth, at the base of the tooth the clypeus is transversely impressed; front with close, rather coarse punctures, with a distinct, medial, impressed line; ocelli slightly pitted, forming an equilateral triangle; top of head and cheeks shining, more finely punctured than the front; first joint of flagellum a little shorter than the second, which is longer than the third; dorsulum with distinct punctures, those on the anterior portion finest and closest; scutellum punctured like hind portion of dorsulum; metathorax on sides and posteriorly with coarse striations, the upper surface with a somewhat triangular enclosure, which is on basal portion obliquely ridged, on apical portion transversely ridged; legs strong, the tibiae and tarsi with a very few weak spines; wings subhyaline, iridescent, the apical margins darker, both recurrent nervures generally received by the second submarginal cell, in one specimen the first recurrent nervure is confluent with the first transversocubital nervure; abdomen finely, though distinctly punctured, the second and third dorsal segments rather strongly transversely depressed basally; pygidial area triangular, finely and closely punctured; black; the abdomen rufous; sides of face, clypeus, sides of thorax more or less, and the apical margins of abdominal segments 1-5, silvery. Length 9 mm.

♂.—Eyes scarcely emarginate within and converging but little towards the vertex; ocelli situated in a low triangle, the distance between the hind pair more than twice greater than the distance between them and the nearest eye-margin; antennae shorter than in the ♀, joints of the flagellum 1-6 produced into a strong angle or tooth beneath, joints 1-4 much narrowed basally; from joint six the flagellum gradually tapers to the apex; apical portion of abdomen blackish; last ventral segment roundly emarginate at the apex. Length 7 mm.

Nevada.

PISON Spin.

Pison Spin. Ins. Lig. Spec. nov., t. II, fasc. IV, p. 255, 1808. Kohl, Verh. zool.-bot. Gesell. Wien, XXXIV, p. 180, 1884.

Head as broad or broader than the thorax. Mandibles without emargination on outer edge; eyes converging towards the vertex, strongly emarginate within; ocelli normal, distinct and form a triangle; antennae tolerably long, placed just behind the clypeus, the flagellum slender, rarely club-shaped; shoulder tubercles not reach-

ing to the tegulæ; metathorax shorter than the dorsulum; marginal cell long, lanceolate, without appendiculation; two or three cubital cells, when there are three the second is petiolated; point of reception of the recurrent nervures by the cubital vein variable; the cubital vein of the hind wings, originates beyond the apex of the submedian cell; armature of the legs very feeble; middle tibiæ with one spur; outer side of anterior tibiæ with or without insignificant spines; second abdominal segment above generally with a transverse depression at base; last dorsal segment of the female conical, without pygidial area, in the male shorter.

But one species of *Pison* has been described from Boreal America, and that I have not succeeded in identifying.

P. laeve Sm.

P. laevis Sm., Cat. Hym. Brit. Mus. IV, 1856, p. 317. ♀.

P. laeve Kohl, l. c. p. 187.

“♀.—Length $3\frac{1}{2}$ lines (7 mm.) Head opaque, the face covered with silvery pubescence; the metathorax smooth and shining with a few scattered punctures at the sides, the central channel without a carina; a deep elongate-ovate fossula in the middle of the truncation, the margins of the latter rounded; the wings slightly fuscous, the nervures black; the two recurrent nervures uniting with the nervures of the petiolated submarginal cell. Abdomen smooth and shining, very delicately punctured, the margins of the segments slightly depressed.”

Georgia.

TRYPOXYLON Latr.

Trypoxylon Latr., Préc. car. gén. Ins. 1796; Kohl, l. c. p. 190.

Head as broad or a little broader than the thorax, formed as in *Pison*; mandibles without emargination on outer edge; inner margin of the eyes strongly emarginate; ocelli normal, distinct; antennæ tolerably long, usually clavate, generally more strongly so in the male, last joint almost always elongated, in the female small, in the male strong and exceeds the length in very many cases the third antennal joint; in the hind wings the cubital vein originates on the medial vein beyond the apex of the submedian cell; armature of the legs very poor; middle tibiæ one spurred; claws entire; anterior tarsi without a comb; radial cell of fore wings long, lanceolate, without appendiculation; only one cubital and one discoidal cell; abdomen elongated, clavate; last segment without pygidial area; in the female conical, in the male truncate. Size variable.

Our species were monographed a year or two ago;² consequently I have thought it unnecessary to again give the descriptions of the species in full. The following table, which is to be substituted for that in the above mentioned monograph, will assist in identifying the species.

FEMALES.

1—Metanotum not trisulcate.....	2
Metanotum trisulcate.....	15
2—Abdomen black, not banded with reddish.....	3
Abdomen banded with reddish	9
3—Metanotum punctured or with very fine striations.....	4
Metanotum more or less striated or rugose.....	5
4—Wings blue-black, thorax with black pile.....	<i>abbitarise</i> .
Wings with the anterior pair fuscous, posteriors except apex hyaline; thorax with pale pubescence.....	<i>albipilosum</i> .
Wings hyaline, their apical margins and the marginal cell fuscous; thorax and abdomen with a silvery pile.....	<i>excavatum</i> .
5—Metanotum with an enclosed space	6
Metanotum without an enclosed space.....	7
6—Anterior portion of clypeus not strongly carinated, wings except apical margin hyaline; posterior tarsi whitish medially	<i>clavatum</i> .
Anterior portion of clypeus strongly carinated, wings subfuscous; posterior tarsi black.....	<i>projectum</i> .
7—Metathorax sulcate its entire length, more deeply so posteriorly, the furrow somewhat interrupted at apex of metanotum.....	8
Metathorax sulcate on its posterior face only, the upper surface rugose; clypeus unidentate	<i>frigidum</i> .
8—Clypeus with a broad, quadrate tooth medially.....	<i>apicalis</i> .
Clypeus bidentate.....	<i>bidentatum</i> .
9—Metanotum punctured.....	<i>rubrocinctum</i> .
Metanotum more or less striated.....	10
10—Front with a strong projection; anterior half of clypeus strongly carinated	<i>tridentatum</i> .
Front with a longitudinal carina above the antennæ.....	11
11—Antennæ entirely black.....	12
Antennæ, except apical portion reddish-fulvous.....	14
12—Posterior tarsi whitish medially; second segment only red.....	<i>rufozonalis</i> .
Posterior tarsi not whitish medially; more than one segment red	13
13—Third antennal joint rather strongly curved, in length about equal to the space between the eyes at the clypeus, fourth and fifth joints equal in length.....	<i>arizonense</i> .

² Trans. Amer. Ent. Soc. XVIII, p. 136-148.

- Third antennal joint but slightly curved, in length not quite equalling the space between the eyes at the clypeus, fourth joint slightly longer than the fifth.....*californicus*.
- 14—Thorax black, with golden pubescence; dorsulum finely punctured.....*texense*.
 Thorax in part rufous; dorsulum very strongly punctured.....*collinum*.
- 15—Abdomen with base of second and third segments reddish fulvous.....*Johnsonii*.
 Abdomen entirely black.....16
- 16—Front with a Y-shaped carina; clypeus rounded.....*carinatus*.
 Front with a short, longitudinal carina; clypeus with a slight medial tooth.....*fastigium*.

MALES.

- 1—Metanotum not trisulcate.....2
 Metanotum trisulcate.....13
- 2—Abdomen not banded with reddish.....3
 Abdomen banded with reddish.....8
- 3—Metanotum punctured or very finely striated.....4
 Metanotum striated or rugose.....5
- 4—Wings blue black; second ventral abdominal segment with a strong hook or spine.....*neglectum*.
 Wings with the anterior pair fuscous, posteriors hyaline except apex; thorax with pale pubescence.....*albipilosum*.
 Wings hyaline, their apical margins and the marginal cell fuscous; thorax with silvery pile.....*excavatum*.
- 5—Posterior trochanters armed with a spine.....*clavatum*.
 Posterior trochanters unarmed6
- 6—Metanotum armed with two stout projections at apex; front with a strong projection.....*projectum*.
 Metanotum without any such projections.....7
- 7—Apical antennal joint much shorter than the three preceding joints.....*frigidum*.
 Apical joint of antennæ fully as long, if not longer than the three preceding joints united.....*bidentatum*.
- 8—Posterior trochanters unarmed.....9
 Posterior trochanters armed with a spine.....10
- 9—Metanotum punctate; base of second segment reddish.....*rubrocinctum*.
 Metanotum striated, with two strong projections at apex.....*tridentatum*.
- 10—Antennæ entirely black.....11
 Antennæ more or less reddish.....12
- 11—Clypeus emarginate medially; legs black, the hind tarsi whitish medially*rufozonale*.

- Clypeus broadly incurved medially, with a tooth in the middle of the incurvation; base of the tibiæ and the posterior tarsi medially reddish *spinosum*.
- 12—Thorax black, with golden pubescence; dorsulum finely punctured..... *texense*.
 Thorax more or less rufous; dorsulum strongly punctured.....
 *collinum*.
- 13—Front with a Y-shaped carina..... *carinatus*.
 Front with a longitudinal carina..... 14
- 14—Four anterior legs fulvous; tarsi ringed with white..... *ornatipes*.
 Legs entirely black; antennæ very strongly clavate..... *fastigium*.
- 1.—**T. albitarse** Fab.
T. albitarse Fab., Syst. Piez. p. 180, 1804.
T. politus Say., Bost. Journ. I, p. 373, 1837.
T. politum Pack., Proc. Ent. Soc. Phila., VI, p. 413, 1867.
 Massachusetts to Central America; Brazil (Smith).
- 2.—**T. neglectum** Kohl.
T. neglectum Kohl., Verh. zool.-bot. Gesell. Wien, XXXIII, p. 340, pl. 18, fig. 3. ♂.
 Pennsylvania to Florida; Iowa.
- 3.—**T. albipilosum** Fox.
T. albipilosum Fox, Trans. Amer. Ent. Soc. XVIII, p. 139, ♀ ♂, pl. 3, fig. 2.
 Pennsylvania to Texas; Illinois; Kentucky.
- 4.—**T. excavatum** Sm.
T. excavatum Sm., l. c. p. 380, 1856. ♀ ♂
 Cuba; Jamaica; New York; Illinois.
- 5.—**T. clavatum** Say.
T. clavatus Say., Bost. Journ. I, p. 374, ♀ ♂.
T. clavatum Pack., l. c. p. 414. ♀; Fox, l. c. p. 140, pl. III, fig. 11.
 Canada to Texas.
- 6.—**T. projectum** Fox.
T. projectum Fox, l. c. p. 141. ♀ ♂.
 Louisiana and Florida.
- 7.—**T. apicalis** Fox.
T. apicalis Fox, l. c. p. 142. ♀, pl. III, f. 10.
 Canada; Massachusetts.
- 8.—**T. frigidum** Sm.
T. frigidum Sm., l. c. p. 381. ♀; Pack. l. c. p. 415. ♀ ♂.
 Hudson Bay to Virginia, westward to Mt. Hood, Oregon.
- 9.—**T. bidentatum** Fox.
T. bidentatum Fox, l. c. p. 143. ♀ ♂, pl. III, f. 9.
 Massachusetts to Mt. Hood, Oregon.
- 10.—**T. rubrocinctum** Pack.
T. rubrocinctum Pack. l. c. p. 416, ♀; Fox, l. c. p. 144, ♂ ♀, pl. III, f. 7.
 New York to Florida.

11.—*T. tridentatum* Pack.*T. tridentatum* Pack., l. c. p. 417, ♀. Fox, l. c. p. 144. ♀ ♂. pl. III, f. 4.

Occurs throughout the United States.

12.—*T. rufozonale* Fox.*T. rufozonalis* Fox., l. c. p. 145, ♀ ♂ pl. III, f. 3.

Colorado; Piedmont, So. Dakota (Aldrich).

13.—*T. arizonense* Fox.*T. arizonense* Fox., l. c. p. 145, ♀, pl. III, f. 13.

Arizona.

14.—*T. californicum* Sauss.*T. californicum* Sauss., Reise d. Novara, Zool. II, 1867, p. 78, ♀.

Closely related to *arizonense*, but may be distinguished by its stouter form, the greater extent of red on abdomen, and by the characters given in the synoptical table. Length 16 mm., somewhat larger than the size indicated by Saussure.

15.—*T. spinosum* Cam.*T. spinosa* Cam., Biol. Centr. Amer., Hym. II, p. 46, pl. 4, figs. 8, 8a., 8b. ♂.*T. spinosum* Fox, l. c. p. 145.

Texas and Mexico.

16.—*T. texense* Sauss.*T. texense* Sauss., l. c. p. 77, ♀; Fox, l. c. p., 146. ♀ ♂.

Texas; Las Cruces. N. Mexico (Cockerell).

17.—*T. collinum* Sm.*T. collinum* Sm., l. c. p. 381. ♀; Pack. l. c. p. 415. ♀ ♂.

Florida.

18.—*T. carinatum* Say.*T. carinatus* Say., Bost. Jour. I, p. 374 ♂.*T. carinatum* Fox, l. c. p. 147.

♀.—Antennæ long, a little thickened apically, the third and fourth joints about equal in length; front strongly convex, with a Y-shaped carina as in the ♂; space between eyes at vertex, if anything a little greater than the length of antennal joints three and four united; anterior margin of the clypeus rounded, entire; abdomen stout, the first segment but little longer than the second, scarcely nodose at apex and furrowed above on basal portion; black; base of four hind tibiæ and the medial tarsi, testaceous; fore-legs—; tibial spurs whitish; face, clypeus, cheeks and thorax more or less, clothed with silvery pubescence; abdomen with a sparse silvery pile. Length $8\frac{1}{2}$ mm.

Indiana (Say); Philadelphia, Penn. (July 14th, 1891.)

19.—*Trypoxylon Johnsonii* Fox.*T. Johnsoni* Fox, l. c. p. 147. ♀.

Florida; Texas.

20.—Trypoxylon ornatipes Fox.*T. ornatipes* Fox, l. c. p. 148. ♂.

District of Columbia; Pennsylvania.

21.—Trypoxylon fastigium Fox.*T. carinifrons* Fox, (nec. Cam.), l. c. p. 142. ♀ ♂.

The above name is proposed for *carinifrons*, Fox (nec Cam).
Texas.

UNIDENTIFIED SPECIES.

Trypoxylon pennsylvanicum Sauss.*T. pennsylvanicum* Sauss., l. c. p. 78. ♀.

“Parvulum nigrum, cinereo-hirtum; mandibulis, apice et tegulis, piceis vel ferrugineis; metanoto basi diviso; calcaribus luteis; alis pellucidis margine apicali griseo; venis fuscis. Long. corp. 0.007; alæ 0.0045.”

“♀ *Tr. mexicanum* simillimum. Differt tamen characteribus variis: Clypeus subangulosus. Caput orbiculare, sinibus oculorum minus alte sitis, fere in mediis oculis. Frons convexiusculus sed sinibus oculorum haud planatis; thorax coriaceus, impunctatus. Metathorax elongatus, postice acute attenuatus, superne subtilissime punctulatus vel striolatus, sulco nel carinea divisus; pleura canaliculo polito profundo exarata; metapleura superne acute marginate. Abdominus 1m. segmentum distincte longius, $1\frac{1}{2}$ longitudine secundi et angustius, dimidio basili lineari, sulcato, apice superne paulum tumido. Alæ limpidae, margine apicali griseo; vena recurrens 2a obsolete perspicua, interstitialis, cum v. transverso-cubitali 1a conjuncta.”

America Borealis, Pennsylvania.

Trypoxylon striatum Prov.*T. striatum* Prov., Add. Hym. Quebec. p. 283. ♀.

“♀.—Long., 58 pce. Entièrement noir à l'exception des tarses postérieurs qui sont blancs excepté à la base du premier, article. La face à partir des antennes à pubescence argentée, opaque et chagrinée au dessus avec pubescence pâle peu abondante, plus apparente sur le métathorax, lequel présente une légère dépression longitudinale sur son disque avec fines stries transversales. Ailes passablement enfumées, plus claires à la base et au sommet, les inférieures subhyalines. Abdomen poli, brillant, à pédicule assez long, s'épaississant continuellement du tiers de sa base au sommet le 2e segment plus étroit que le premier à la base, plus large au sommet, tous deux

sans trace de ligne impressionnée sur le dos.—Ottawa (Guignard.)”

“Diffère du *politus* Say, par sa plus petite taille, sa face argentée, et l’absence de ligne impressionnée sur les segments abdominaux 1 et 2.”

Trypoxylon sulcus La Munyon.

T. sulcus La M., Proc. Nebr. Assoc. Adv. Sc., March, 1877.

“Black; face, including the emargination of the eyes, and sutures of the thorax clothed with dense, short, golden pubescence; other portions of the body sparsely pubescent. Tibiæ, tarsi, second segment of abdomen and second and third joints of the antennæ rufous. Wings tinged with rufous, dusky at tips. Antennæ subclavate, subcompressed. Metathorax long, deeply sulcate above. Two first segments of the abdomen petiolate, constricted and deeply sulcate beneath. The balance of the abdomen fusiform. Length $\frac{3}{4}$ inch.”

Habitat, North Platte, (Nebraska). This species is evidently synonymous with *texense* Sauss.

Trypoxylon unicolor Bve.

T. unicolor Bve., Ins. Afr. et Amer. p. 116, pl. 3. fig. 3.

“Nigro-fuscum; alarum apicibus fuscis; abdominis pediculo angustissimo, cuneiformi elongato. (Fig. 3). Caroline du Sud.”

“Obs. De chaque côte, au bas des premiers anneaux, on remarque une tache d’un gris blanc, formée par un duvet très-mince, un peu argenté.”

NITELIOPSIS Saund.

Niteliopsis Saund., Tr. Ent. Soc., London, III, p. 410, 1873.

Solierella Kohl, (not Spin.) Verh.-zool. bot. Gesell., Wien, XXXIV, p. 207.

Niteliopsis Fox, Psyche, November, 1893, p. 555.

Form similar to *Pison*. Head broader than the thorax; mandibles acute at tip, if emarginate on outer edge they are but very slightly so; antennæ long, slightly thickened medially, rather widely separated from each other at their insertion; *flagellum joints distinct, last joint semi-acute at tip* (at least in ♀); *eyes rather strongly converging*, so that the space between them at the vertex is about equal to a little more than half of the space between them at the clypeus; ocelli regular and round, placed so as to form a triangle, *the hind pair lie distinctly before an imaginary line drawn across the vertex from one posterior orbit to the other*; top of prothorax not reaching by far the level of the dorsulum; shoulder tubercles not reaching the tegulæ; dorsulum distinctly wider than broad; metathorax

subtruncate behind, about as long as the dorsulum; radial cell narrowly elongate, truncate, and with an appendiculation; three submarginal or cubital cells, the first much larger than the other two united, *the second triangular, petiolated and receives both recurrent nervures*, the third submarginal oblique and is a little narrower above than below; cubital vein of hind wings originates far beyond the apex of the submedian cell; tibiæ and tarsi scarcely armed with spines, middle tibiæ one-spurred; anterior tarsi without comb; *pulvilli large*, claws small, entire; abdomen narrower and a little shorter than the thorax, dorsal segments 1-3 transversely depressed at base and apex; *second dorsal without any longitudinal impression in the middle*; last segment conical, without pygidial area.

Niteliopsis plenoculoides Fox.

N. plenoculoides Fox, Psyche, Nov. 1893, p. 555. ♀.

♀.—Clypeus strongly carinated down the middle; front finely granulated, distinctly impressed down the middle, along the inner eye-margins the front is finely punctured; eyes strongly converging to the top, the space between them at the vertex is about equal to one-half of the space at the clypeus; ocelli in a triangle, the lower one situated a little further away from the hind pair, than the hind pair are from each other; from each hind ocellus, there extends down a short furrow, which reaches a little beyond the fore ocellus; antennæ tolerably long, reaching to about the tegulæ, the flagellum tapering on apical half, joints 2 and 3 of the flagellum longest, the first and fourth about equal; dorsulum with exceedingly close and fine punctures; metathorax above and on the sides finely granulated, with indistinct striations when viewed in certain positions, at the extreme base of upper surface there is a transverse series of small foveae and down the middle there is an impressed line (this is not distinct in one specimen), the posterior face transversely rugose; tibiæ and tarsi, with exception of the calcaria unarmed; tarsal claws rather short, stout and not toothed; abdomen elongate-ovate, the first three dorsal segments when viewed from the side are seen to be contracted basally and apically; last dorsal segment without a pygidium; three submarginal cells, the second petiolated, receiving both recurrent nervures, black; two transverse spots on the collar above, posterior half of tubercles, a spot near the middle of hind tibiæ and the tibial spurs, whitish; apex of mandibles tegulæ and tarsi, testaceous; wings

subhyaline, nervures black; face and clypeus, sides of thorax and abdomen, more or less, with silvery pile. Length 6 mm.

New York; Colorado.

MISCOPHUS Jurine.

Miscophus Jur., Nouv. méth. class. Hym. p. 205; Kohl, l. c. p. 218.

Head wider than the thorax; mandibles strongly emarginate on outer edge, not toothed within and with an acute tip; antennæ filiform, at their insertion rather widely separated and placed immediately behind the clypeus, in the male shorter and thicker; eyes converging but little to the vertex, or not at all; ocelli regular and distinct, and are placed before the line which one may imagine drawn across the vertex from one posterior orbit to the other, and form a triangle; the top of the pronotum lies but little or not at all below the level of the dorsulum; marginal or radial cell lanceolate, not appendiculate, its size varying in the different species; two submarginal cells, the second of which is petiolated and receives the second recurrent nervure, the first recurrent nervure is received by the first submarginal cell near its apex; cubital vein of hind wings originating far beyond the apex of the submedian cell; armature of the legs very variable, in some species with a well developed tarsal comb, in others it is short and inconspicuous; middle tibiæ one spurred; pulvilli medium; metathorax generally longer than broad; last segment in ♀ conical, in the ♂ truncato-conical, both sexes without pygidial area. The ♂ differs further from the ♀ in the thicker antennæ, the feebler and shorter tarsal comb and the obtuse apical segment. But one species has as yet been found in the United States.

M. americanus Fox.

M. americanus Fox, Ent. News, I. p. 138, ♀; *ibid*, II, p. 196, ♂.

♀.—Clypeus seemingly divided to three parts or lobes, the middle one of which is largest, convex, its anterior margin rounded and, as well as the other lobes with a transverse impressed line or furrow anteriorly just behind the anterior margin which gives the latter the appearance of being reflexed; front having the appearance of being exceedingly finely granulated, with an impressed line extending from fore ocellus down to the insertion of antennæ; distance between hind ocelli decidedly greater than that between them and the nearest eye-margin; inner eye-margins distinctly though not very strongly converging to the vertex; antennæ rather long, filiform, the the first joint of the flagellum about one-quarter longer than the

second, the third joint is, if anything, slightly longer than the second or fourth; dorsulum with exceedingly fine and close punctures; scutellum strongly convex, not impressed; metanotum with rather strong punctures or granules, with a well-defined raised line extending from base to apex; metapleuræ indistinctly striated; tibiæ and tarsi not at all, the tarsi slightly perhaps, spinose, the fore tarsi without comb; abdomen shining much more finely punctured than the dorsulum; wings hyaline, the anteriors with their apical margin broadly fuscous, nervures black, marginal cell distinctly shorter than the first submarginal, second recurrent nervure received by the second submarginal cell near its apex; black; tegulæ brownish; face, cheeks, thorax and legs more or less clothed with silvery pile; apical margins of abdominal segments 1-4 also with silvery pile. Length $4\frac{1}{2}$ mm.

♂.—Very much like the ♀ but differs in being slightly smaller, the posterior face of metathorax is transversely wrinkled and the second submarginal cell is sub-angular beneath $3-3\frac{1}{2}$ mm.

Camden County, New Jersey in latter part of July. Not common.

LARRA Fab.

Larra Fab., Ent. Syst. t. II. p. 220. 1793.

Larrada Sm., l. c. p. 274. 1856.

Form robust; head broader than the thorax; mandibles emarginate on outer edge, their apex simple and their inner margin not dentate; antennæ tolerably stout; *eyes converging towards the vertex, along their inner margins there extend ledge-like swellings which are strongest in the middle and are connected to each other by a transverse swelling which extends across the front above the middle*, below the transverse swelling there are two longitudinal impressions, evidently for the reception of the scape; *anterior ocellus round and regular and lies far before the two posteriors which are quite flat, longish, placed close to each other and are generally indistinct*; the collar is transverse, straight and is not, or only in a very slight degree, depressed beneath the level of the dorsulum; *marginal cell broadly truncate and with an appendiculation*; three submarginals, the first of which is about as great as the two others united, the second trapezoidal or, if the first and second transverse cubital veins are very approximate to each other, subtriangular, and receives both recurrent nervures, the third placed obliquely; in the hind wings the cubital vein originates a little be-

yond the apex of the submedian cell; legs stout, femora thick, the armature strong; *middle coxæ widely separated from each other; middle tibiæ one-spurred*; fore tibiæ, apart from end spurs and some apical spines, on the outer side tolerably spinose, and in the middle of their inner side armed with a single spine; the tarsal comb is composed of a moderate number of short and strong spurs or spines; claws and their pulvilli tolerably developed; metathorax as long or longer than the dorsulum; abdomen polished, the dorsal ring of third segment of normal construction without basal elevation; last dorsal segment with a pygidial area in the form of a triangle in the ♀ the sides of which are slightly bowed outwardly, *bearing no pubescence and at the end no little bristles*; in the ♂ the last segment is trapezoidal and appears margined outwardly as in the species of *Tachytes* and *Tachysphex*; as regards sculpture and punctuation it may be mentioned that it is coarser than in the species of *Notogonia*.

Although upwards of two dozen species have been described from the United States as members of this genus, a study of them reveals the fact that but two belong here, the others being either species of *Notogonia* or *Tachysphex*.

1.—*L. analis* Fab.

L. analis Fab., Syst. Piez., 1804, p. 220.

♀.—Scape and pedicellum shining, the flagellum opaque, with the first joint over one-quarter longer than the second, which joint is evidently shorter than the third, the latter is about as long as the fourth; the flagellum is thickest basally; clypeus convex, with tolerably strong and close punctures, except on anterior portion where it is impunctate, the anterior margin rounded; the front and vertex with the punctures much more scattered than on the clypeus, especially behind the ocelli; from the fore ocellus there extends down a deep furrow; a deep depression behind the posterior ocelli; dorsulum strongly and densely punctured; scutellum not so closely punctured, slightly impressed, especially posteriorly; metanotum truncate, granulated, and at base with a raised line which extends about one-fourth its length, posterior face of metathorax transversely wrinkled, the metapleuræ punctured like the dorsulum, though somewhat more finely so; legs robust, the tibiæ and tarsi strongly spinose; tegulæ with the anterior portion finely punctured; abdomen shining, with very fine and indistinct punctures, dorsal segments 2-5 with a sinuous row of large punctures which begins at the base laterally and goes back nearly to

the hind margin from which place it goes forward to about the middle of the segment and then back again to the hind margin (this is more distinct in some specimens than in others); pygidial area with a few large punctures; black; the last three abdominal segments bright red; face, clypeus, thorax, especially beneath and the legs with a short, appressed, fusco-sericeous pile; wings fuliginous, iridescent, nervures black; width of the second submarginal cell above less than the space between the recurrent nervures on the cubital nervure. Length 17-21 mm.

New York to Florida, westward to Kansas. The deep black and bright red abdomen gives this species a very striking appearance.

2.—**L. Cressonii** Fox.

L. americana Cr., (nec. Sauss). Tr. Amer. Ent. Soc. IV, p. 214, ♂. 1872.

♂.—Clypeus sub-truncate medially, distinctly punctured, most closely so posteriorly; first joint of flagellum not over one quarter longer than the second, the latter is a little longer than the third; front and vertex rather coarsely punctured, most sparsely so on the vertex; space between the eyes at the top nearly equal to the length of antennal joints 2-4 united; dorsulum strongly and densely punctured; scutellum distinctly impressed; metanotum more strongly punctured than in *analis*, and the medial raised line is longer, extending about half the length of the metanotum; metapleuræ more finely punctured than the dorsulum; tibiæ and tarsi tolerably well armed with spines; abdomen sub-opaque, very finely and closely punctured, no transverse rows of coarse punctures as in *analis*; black; face, clypeus, cheeks, thorax and legs more or less, with silvery pubescence; apical margins of dorsal abdominal segments 1-5 with silvery pile; wings fuliginous, iridescent. Length 11-16 mm.

Pennsylvania to Louisiana. May be the male of *analis*, though scarcely probable.

UNIDENTIFIED SPECIES.

Larra laevifrons Sm.

Larrada laevifrons Sm., l. c. p. 291.

Larra laevifrons Kohl, l. c. p. 245.

“♀.—Length $4\frac{1}{2}$ lines.—Head and thorax black; the face thinly covered with silvery pubescence; the vertex with merely a slight elevation above the anterior ocellus, with two smooth spaces behind, between them a smooth, shallow channel which passes a short way upwards towards the vertex terminating in a smooth fovea. Thorax

opaque; the metathorax finely shagreened, and having at the sides a little cinereous pubescence; wings hyaline, the nervures testaceous; the apical joints of the tarsi rufo-testaceous. Abdomen: the three basal segments red, the apical ones black; thinly covered with cinereous pile, the apical segment very smooth and shining."

"East Florida (St. John's Bluff)."

Evidently a *Tachysphex*, and perhaps identical with *T. tarsata*.

Larra canescens Sm. (*Tachysphex*?)

Larrada canescens Sm., l. c., p. 292. ♀.

Larra canescens Kohl, l. c. p. 242.

"♀.—Length 5 lines.—Black: thinly covered with short cinereous pubescence the abdomen being covered above and beneath; the head, mesothorax and scutellum strongly punctured; the metathorax shagreened; the flagellum much thickened towards the base, which is again more slender; the wings brown, the posterior pair clearer at the base; the anterior tibiae and tarsi obscure ferruginous. Abdomen: on apical margins of segments the pubescence is bright and silvery, observable in different lights."

"Georgia." Also very likely *Tachysphex*.

Larra arcuata Sm. (= *Ancistromma*?)

Larrada arcuata Sm., l. c. p. 293. ♀.

Larra arcuata Patton, l. c. p. 389.

"♀.—Length 4½ lines.—Black; the face with silvery pubescence; the mesothorax subopaque; the scutellum shining and finely punctured; the metathorax with an arcuate striation, the striation curving forwards, interrupted in the middle by a longitudinal carina which runs to the verge of the truncation, the latter has a small triangular shape crossed by coarse arcuate striae, in the middle of which is a deep fovea; from the fovea a carina runs downwards to the base; on each side of the fovea the truncation is smooth, and covered with silvery white pubescence; wings subhyaline, with a faint cloud at their apical margins. Abdomen smooth and shining, with the apical segment rugose."

"Canada." Seems to closely resemble *Tachysphex quebecensis* Prov., but the rugose apical segment will exclude it from the genus *Tachysphex*. It may an *Ancistromma*.

Larra pennsylvanica Bve.

L. pennsylvanica Pal., Bve., Ins. Afr. et Amer. p. 118, Taf. III, f. 8, 1805.

"Noir-luisante; Ailes ternes."

"Pennsylvanie." From an examination of the figure of this species, given by Beauveois I should refer it to *Tachysphex*.

NOTOGONIA Costa.

Larrada Sm., l. c. p. 274. 1856.

Notogonia Costa, Ann. Mus. Zool. Univ. Napoli (Ann. IV), p. 80 et 82. 1867.

Larra Patton, Proc. Boston Soc. Nat. History, XX, p. 385. 1880.

Head a little broader than the thorax; mandibles emarginate on outer edge and *with a tooth or inner edge between the middle and the base*, their apex simple; antennæ more slender than in *Larra*; eyes converging to the vertex, the convergence greater in the ♂ than in the ♀ and differing in the various species, generally stronger than the *Larra*, to which this genus agrees in the ledge-like swellings of the front and the disposition of the ocelli; *the collar is smaller than in Larra and moreover differs from it by being depressed beneath the dorsulum*; wings as in the preceding genus; the legs are proportionately longer than in *Larra*, stoutly armed; middle coxæ widely separated from each other; middle tibiæ one-spurred; anterior tibiæ, with exception of their end spurs and a spine not far from the middle of inner side, unarmed; the comb of fore tarsi is formed of only a moderate number of spines, which at the most are not particularly long and only in a few species reach an extraordinary development; *the posterior tibiæ show, though not always, but in almost all the species known, two sharp longitudinal keels³, which are spinose*. The claws are very long, in rare cases with a tooth not far from the base of inner edge; pulvilli small; metathorax as long or longer than the dorsulum; abdomen not polished as in *Larra*; second ventral segment in the middle near the base with a convexity, the size and form of which differs considerably; commonly the segment appears almost keeled; to each side of the convexity there is a more or less expanded oval, flat impression of feebler color; these impressions are always present *if the convexity is distinct* and give the hind trochanters a freer motion. The males do not show these relations of the third ventral plate or only very slightly; last dorsal segment with a pygidial area, formed in the ♀ as in *Larra* and *covered with a more or less fine, generally hoar-frost-like pubescence, which easily wears off and in old individuals is not at all perceptible*; *at the apex of the pygidial area there are some stiff little bristles*; the last dorsal segment of the ♀ is trapezoidal and often considerably convex and at the apex margined outwardly.

³ Seemingly not evident in our three species.

One species, formerly referred to *Larra* and two new species occur in this country. They may be tabulated as follows:

FEMALES.

Wings sub-hyaline; apical margin fuscous *argentata*.
Wings dark fuliginous.

First joint of flagellum distinctly shorter than the second
. *nigripennis*.

First joint of flagellum about equal to the second *aequalis*.

MALES.

Wings subhyaline; apical margin fuscous *argentata*.
Wings dark fuliginous *aequalis*.

Notogonia argentata Bve.

Larra argentata Bve., Ins. Afr. et Amer. p. 119, taf. III. f. 9, 1805.

Lyrops argentata Say, Journ. Nat. Hist. I, p. 370, 1836.

Larrada argentata Sm., l. c. p. 292.

♀.—Clypeus rounded anteriorly, exceedingly finely and closely punctured, except on anterior portion where the punctures are larger and sparse; first, second and third joints of the flagellum about equal in length; space between the eyes at the top is about equal to the length of the first joint of the flagellum; dorsulum not strongly depressed anteriorly in the middle and is indistinctly punctured; scutellum sub-convex, not impressed: metanotum evidently very finely granulated, and with a medial, raised line extending from base to apex, the posterior face, especially laterally, with strong, transverse wrinkles; sculpture of metapleuræ like the dorsulum; legs stout, the tibiæ and tarsi strongly spinose; comb on fore tarsi not well developed, composed of stout, widely separated spines; sculpture of abdomen indistinct, the last ventral segment with rather strong punctures; black, the tegulae testaceous behind; head, thorax and legs when held in certain lights clothed with silvery pile, which is densest on clypeus and cheeks, the apical margin of dorsal segments 1-3 also with silvery pile; wings subhyaline, iridescent, apical margins fuscous. Length 10-14 mm.

♂.—Closely resembles the ♀; antennæ shorter and stouter, the joints more compact, first joint of flagellum shorter than the second; space between the eyes at the top equal to about the length of the first and one-third of the second joint of the flagellum; anterior margin of the clypeus a little produced medially; hind femora with a swelling at the base beneath, the middle femora beneath near the base strongly incurved as are likewise the fore femora; this sex

is more densely clothed with silvery pile and there are four, sometimes five, silvery bands on the abdomen. Length 7-11 mm.

Occurs throughout the entire United States.

2.—*Notogonia nigripennis* n. sp.

♀.—Clypeus rounded anteriorly, slightly emarginate medially, the posterior portion with very fine and close punctures, the middle portion with strong punctures while anteriorly the punctures are distinct; first joint of flagellum shorter than the second, the latter about equal to the third; remaining joints ———; space between eyes at the top is, if anything, a little less than the length of the first joint of flagellum; dorsulum not strongly depressed anteriorly in the middle, with exceeding fine and close punctures; scutellum shining, slightly impressed; metanotum very finely granulated and with a tolerably distinct, medial, impressed line extending from base to apex, the posterior face with transverse wrinkles, the metapleuræ indistinctly sculptured; tibiae and tarsi strongly spinose; sculpture of abdomen above indistinct, ventral segments 4-6 with strong punctures, those on sixth segment closest; black, tegulae testaceous posteriorly; front, face, cheeks, legs more or less and dorsal abdominal segments 1-3 (or 4) at apex with silvery pile; wings dark fuliginous, iridescent. Length 18 mm.

New York.

3.—*Notogonia aequalis* n. sp.

♀.—Clypeus rounded anteriorly, emarginate medially, the posterior portion with very fine and close punctures, those on the anterior half more distinct; first joint of flagellum in length about equal to the second, the latter about equal or perhaps slightly longer than the third; the antennae taken as a whole are long, narrowed to the apex, in length about equal to the head and thorax combined; space between eyes at the top distinctly less than the length of the first joint of flagellum; dorsulum with very fine and close punctures, which are however a little more distinct than in *nigripennis*; dorsulum distinctly impressed; metanotum granulated, more strongly so than in preceding species, and with a distinct, medial, raised line, extending from base to near apex, the posterior face laterally with a few wrinkles; tibiae and tarsi strongly spinose; abdomen shining, indistinctly sculptured, with exception of the fifth and sixth ventral segments which are strongly punctured; black; front and clypeus

scarcely silvery; head and thorax beneath with long, fuscous pubescence; the abdomen when viewed from behind, shows a sparse silvery pile, which is most obvious at apex of second dorsal segment; the ventral segments of abdomen possess a few long, black hairs or bristles; wings dark fuliginous, iridescent. Length 17 mm.

♂.—Antennæ somewhat shorter and stouter than in the ♀, the first joint of flagellum in length about equal to the second; space between the eyes at the top slightly less than the length of the pedicellum and first joint of the flagellum united; anterior margin of clypeus produced medially; hind femora with scarcely any swelling at base beneath, the remaining femora beneath not at all incurved, strongly convex; apical margins of segments 1-3 when viewed from behind with silvery pile; wings colored like the female. Length 12 mm.

New York and Georgia.

ANCISTROMMA gen. nov.

Body tolerably stout, never densely pubescent; mandibles widely emarginate on outer margin, armed with two teeth within; antennæ tolerably stout, in length variable, usually longer than in either *Tachytes* or *Tachysphex*, the scape not elongate as in those two genera, but short and stout; eyes always converging towards the vertex, the convergence different in the various species; *posterior ocelli linear at the top broadened and furrowed, which gives them the appearance of being formed into a hook*; anterior ocellus round, well-developed; the head in front is *distinctly*, though not strongly as in *Larra* and *Notogonia* *raised or swollen along the inner eye margin*; face behind the base of antennæ *not bituberculate*, at the most presenting a slight swelling; prothorax better developed than in either *Tachytes* or *Tachysphex*, in some species reaching the level of the dorsulum; sculpture of thorax rather coarse; tibiæ and tarsi of all the legs strongly spinose, middle tibiæ with a single spur; pulvilli large; claws long as in *Notogonia*, entire; *fore femora of ♂ near the base emarginate and still nearer the base drawn out into a tooth*, fore tarsi of ♀ with a comb, *composed of short stout thorns*, in the ♂ this comb is also present but is much weaker, anterior tibiæ on outer side without spines or bristles; last dorsal segment of ♀ with a large, coarsely sculptured and *clothed with pubescence on apical portion*, pygidial area; in the ♂ the eighth ventral segment is not emarginate.⁴ Marginal cell of

⁴One species *A. vegeta*, however, has this segment emarginate.

anterior wings either truncate or pointed, the appendiculation usually distinct; three submarginal cells, the second of which receives both recurrent veins; *stigma larger, and consequently more distinct than in Tachytes or Tachysphex*; cubital vein of hind wings originating beyond the apex of the submedian cell. Size medium.

This genus is erected for a number of species which, although possessing the characters of each to a certain degree cannot be placed either in *Notogonia*, *Tachytes* or *Tachysphex*. The emarginate femora of the ♂ excludes them from *Notogonia*, the raised front along inner eye-margins from *Tachytes* and *Tachysphex* and again from *Tachysphex* by the shape of hind ocelli and stiff tarsal comb. From *Liris*, which does not occur in this country, the emarginate mandibles is sufficient to separate it. Ultimately, it seems to me, that a number of genera, belonging to this group, will have to be reduced to the value of sections as has been done with numerous genera of the Sphecidae (s. s.). This genus gives promise of being one rich in species as eleven are treated of herein.

FEMALES.

- 1—Space between eyes at top less than, or equal to, the length of antennal joints 2 and 3 united 2
 Space between eyes at top decidedly greater than the length of antennal joints 2 and 3 united 5
- 2—Space between eyes at top just about equal to the length of antennal joints 2 and 3 united 3
 Space between eyes at top less than the length of antennal joints 2 and 3 united 4
- 3—Dorsulum finely and very closely punctured, opaque; anterior margin of clypeus with lateral angles strongly produced. . *aurulenta*.
 Dorsulum finely and somewhat sparsely punctured, shining; anterior margin of clypeus bidentate *dolosa*.
- 4—First joint of flagellum not shorter than the second, if anything slightly longer; lateral angles of anterior margin of clypeus strongly produced; wings fuscous *capax*.
 First joint of flagellum distinctly shorter than the second; laterally, the anterior margin of clypeus is usually bidentate; wings clear (the abdomen varies from black to red and black) *distincta*.
- 5—Abdomen entirely black 6
 Abdomen more or less red 8
- 6—Antennæ longer than head and thorax united 7
 Antennæ, when stretched-out, but little longer than the head and that part of thorax preceding the hind margin of tegulæ; form robust *vegeta*.

- 7—Deep-black, not sericeous; metathorax above rather finely transversely striated; wing dark fuscous *tenuicornis*.
Clothed with sericeous pile; metathorax above very coarsely, transversely plicated or rugose; wings subfuscous *discreta*.
- 8—Wings subhyaline; form rather slender *conferta*.
Wings dark fuscous; form stout 9
- 9—Antennæ long, setaceous, in length greater than head and thorax united *divisa*.
Antennæ short, stout, in length by no means as great as head and thorax *consimilis*.

MALES.

- 1—Space between eyes at top not greater than the length of antennal joints 2 and 3 united 2
Space between eyes at top decidedly greater than the length of antennal joints 2 and 3 united, as great or greater than the length of joints 3 and 4 3
- 2—First joint of flagellum but little shorter than the second; front coarsely sculptured *aurulenta*.
First joint of flagellum nearly one-third shorter than the second; front finely sculptured (abdomen varying from entirely black to red and black). *distincta*.
- 3—Wings clear; space between eyes at top about equal to the length of antennal joints 3 and 4 united *conferta*.
Wings dark fuscous 4
- 4—Space between eyes at top as great, or greater than, the length of antennal joints 2-4 united 5
Space between eyes at top less than the length of antennal joints 2-4 united (deep-black, shining) *tenuicornis*.
- 5—Clypeus closely punctured throughout; dorsulum opaque, compactly punctured 6
Clypeus rather sparsely punctured; dorsulum shining with the punctures tolerably fine and separated *vegeta*.
- 6—Antennæ shorter than head and thorax united; basal abdominal segments red 7
Antennæ about as long as head and thorax united; at the most the second abdominal segment only red (or the abdomen entirely black); abdomen finely, though distinctly punctured basally; sculpture of vertex coarser than that of front . *rugosa*.
- 7—Basal abdominal segments distinctly punctured; last dorsal segment not keeled laterally; metathorax above transversely rugose *divisa*.
Basal abdominal segments not punctured; last dorsal segment distinctly keeled laterally; metathorax above indistinctly striated *consimilis*.

1.—*Ancistromma aurantia* Fox.

Larra aurantia Fox, Ent. News. p. 194. ♀.

♀.—Anterior margin of clypeus truncate, the lateral angles strongly produced, just before these angles there is a single tooth; front with close punctures, appearing granulated; vertex very finely and closely punctured; space between eyes at top just about equal to the length of antennal joints 2 and 3; antennæ tolerably long and setaceous though scarcely as long as the head and thorax united; first and second joints of flagellum about equal in length; dorsulum with the punctures fine and compact; scutellum impressed; meta-thorax rugose, most strongly so on upper surface, on which place there is a distinct, longitudinal, medial furrow; tibiæ and tarsi strongly spinose; pygidial area sparsely and strongly punctured, about one-third longer than it is broad at the base, the apical half densely pubescent. Black; abdomen orange, sometimes with some dark blotches dorsally; head and thorax not pubescent and the abdomen not pilose; wings pale fuscous, iridescent, nervures black; marginal cell on apical portion, separated for about one-fifth its entire length from the anterior margin of the wing, therefore being more or less pointed at apex; tarsi testaceous. Length 11-15 mm.

♂.—Anterior margin of clypeus rounded-out, emarginate medially and not dentate laterally; front granulated; vertex very finely and closely punctured; space between the eyes at top about equal to the length of antennal joints 2 and 3 united; first joint of flagellum about equal to or very slightly shorter than the second in length; dorsulum and scutellum sculptured as in the ♀, the scutellum impressed; legs rather feebly spinose; colored like the ♀ but with the apical abdominal segments black and the wings subhyaline, with the nervures testaceous; face and clypeus with silvery pubescence, the thorax and abdomen with a sparse, silvery pile. Length 10-11 mm.

Montana; Nebraska; California (*Coll. Ashmead.*) The distance between the recurrent nervures at the top is usually greater than the distance between the first recurrent nervure and the base of the second submarginal cell.

2.—*Ancistromma capax* n. sp.

♀.—Anterior margin of clypeus emarginate medially, the lateral angles strongly produced, just before these angles there is a small tooth; front finely and closely punctured, rather protuberant on each

side of the medial furrow, which is very strong; vertex with very fine and close punctures; space between the eyes at top distinctly less than the length of antennal joints 2 and 3; antennæ tolerably long and setaceous; first joint of flagellum, if anything, a little longer than the second; dorsulum with fine, even, compact punctures; scutellum much more finely and sparsely punctured than the dorsulum, its apical portion impressed; metathorax striated, most strongly on posterior face the upper surface with the striations irregular; legs strongly spinose; pygidial area in length, when fully exposed, about twice greater than its width at the base, strongly and sparsely punctured. Black; abdomen, except last three segments, bright red; tarsi testaceous; wings subfuscous, iridescent nervures black; marginal cell on apical portion separated for about one-fifth its length from the anterior margin of the wing, being therefore more or less pointed at apex; recurrent nervures with the distance between them at the top less than that between the first recurrent nervure and the base of the second submarginal cell. Length 16-17 mm.

Colorado and Nevada.

3.—*Ancistromma distincta* Sm.

Larrada distincta Sm., l. c. p. 292.

Larra distincta Patt., l. c. p. XX, p. 390. ♀ ♂.

♀.—Anterior margin of clypeus emarginate medially, bidentate laterally, the lateral angles not strongly produced; front very finely and closely punctured, the medial furrow distinct but not strong; vertex with the punctures finer and closer than those on the front; space between eyes at top a little less than the length of antennal joints 2 and 3 united; antennæ shorter than the head and thorax united, the first joint of the flagellum about one-third shorter than the second; dorsulum with fine, even, distinct punctures; scutellum punctured likewise, not impressed; metathorax striated, most coarsely so on posterior face, the striations on upper surface irregular, i. e., on basal portion they are longitudinal until they reach a little beyond the middle, where they curve and extend to the sides, on the posterior portion of upper surface the striations are transverse, the upper face has a strong furrow; legs tolerably strongly spinose; pygidial area strongly and sparsely punctured, about two and a quarter times longer than it is broad at the base. Black; tarsi testaceous; wings hyaline, slightly dusky at apex, iridescent; marginal cell obliquely truncate. Length 11-13 mm.

♂. — Anterior margin of clypeus rounded-out, indistinctly bidentate laterally; front and vertex sculptured similarly to the ♀; space between eyes at top a little less than the length of antennal joints 2 and 3 united; first joint of flagellum fully one-third shorter than the second; dorsulum more compactly punctured than in the ♀; scutellum impressed, legs feebly spinose; colored like the ♀; front, face, clypeus densely and the thorax very sparsely, clothed with silvery pubescence; abdomen with a silvery pile. Length 8-12 mm.

Var. ♀ ♂. First two, sometimes three, segments of abdomen bright red.

Occurs from Canada (*Harrington*) to Florida, westward to Montana. From the latter locality I have only seen the black and red variety. The female of this species is what we have heretofore called *Larra pensylvanica* Bve., but an examination of Beauvois' figure of this latter species invalidates that supposition; *pensylvanica* is probably a *Tachysphex*.

4.--*Ancistromma dolosa* n. sp.

♀. — Anterior margin of clypeus emarginate medially, bidentate laterally, the outer tooth representing the lateral angles and is by far the largest; front finely and closely punctured; vertex even more finely and closely punctured than the front; space between the eyes at the top about equal to the length of antennal joints 2 and 3 united, if anything it is slightly less; antennæ much shorter than the head and thorax united, the first joint of flagellum, if anything a little longer than the second; dorsulum with fine, rather sparse punctures; scutellum impressed (?); metathorax striated, most strongly so on posterior face, the upper surface with the striations irregular and impressed medially; legs tolerably spinose; pygidial area strongly and sparsely punctured, about twice as long as it is broad at the base. Black; abdomen bright red; tarsi testaceous; wings dark fuscous, iridescent, nervures black; marginal cell apically, separated from the anterior margin of the wing; head, thorax and abdomen entirely destitute of pubescence or pile. Length 13 mm.

California (*Coll. Ashmead*). Resembles very much *Tachysphex triquetrus*, but the form of the ocelli and short, stiff tarsal-comb will at once separate it from that species.

5.—*Ancistromma tenuicornis* Sm.*Larrada tenuicornis* Sm., l. c. p. 293. ♀*Larra tenuicornis* Patt., l. c. p. 389.

♀.—Anterior margin of clypeus rounded-out, indistinctly dentate laterally; front granulated; vertex finely and closely punctured; space between eyes at top about equal to the length of antennal joints 2, 3 and one-third of 4; antennæ very long, setaceous, if anything, longer than the head and thorax united, the first joint of flagellum about one-fifth, or less, shorter than the second; dorsulum with fine, even and distinct punctures; scutellum impressed; metathorax above with a deep and broad furrow, transversely striated, the metapleuræ finely striated, the posterior face irregularly so; legs strongly spinose; pygidial area with large and sparse punctures, scarcely twice as long as it is broad at base. Deep black; shining; tarsi testaceous; wings dark fuscous, strongly iridescent; marginal cell obtuse at apex; head, thorax and abdomen entirely nude of pubescence or pile. Length 13-15 mm.

♂.—Anterior margin of clypeus rounded-out, not dentate laterally; front granulated, strongly punctured medially; vertex strongly punctured; space between the eyes at top as great as the length of antennal joints 2-4 united; antennæ as long as head and thorax united, joints 1 and 2 of flagellum about equal in length; scutellum impressed; metapleuræ and posterior face of metathorax much more coarsely sculptured than in the ♀; legs tolerably spinose; abdomen finely and distinctly punctured; colored like the ♀; face, clypeus and metathorax with rather sparse, silvery pubescence; abdomen with sparse silvery pile. Length 10-13 mm.

California (*Smith* and *O. B. Johnson*); State of Washington. The deep black color and long antennæ will at once distinguish this species.

6.—*Ancistromma discreta* n. sp.

♀.—Anterior margin of clypeus rounded-out, indistinctly dentate laterally; front with strong, distinct punctures, which become much finer laterally; vertex strongly punctured, but not so much as the front; space between the eyes at top about equal to the length of antennal joints 2, 3 and three-fourths of 4 combined; antennæ very long, setaceous, longer than head and thorax united, the first joint of the flagellum fully one-quarter shorter than the second; dorsulum and scutellum with tolerably strong and distinct punctures, scutellum not

impressed; metathorax above and behind with coarse, transverse plicæ or rugæ, on the metapleuræ becoming obsolete on lower portion, the upper surface strongly furrowed medially and with the transverse, basal row of foveæ very prominent; legs rather feebly spinose for this sex; pygidial area strongly and sparsely punctured, about one-and-a-half times longer than it is wide at the base, its lateral margins somewhat reflexed. Black; clothed with sericeous pile, that on sides of face and thorax beneath, silvery in certain lights; last two joints of tarsi only, testaceous; wings subfuscous, darker at apex, iridescent, nervures testaceous; marginal cell obliquely truncate. Length 15 mm.

Georgia. Easily recognized by coarse sculpture of metathorax and the sericeous pile with which it is clothed.

7.—*Ancistromma conferta* n. sp.

♀.—Anterior margin of clypeus rounded-out, indistinctly dentate laterally; front fine and closely punctured, more sparsely so medially, the medial impressed line rather faint; vertex a little more distinctly punctured than the sides of the front; space between the eyes at top slightly less than the length of antennal joints 3 and 4; antennæ setaceous, but little longer than the head and thorax united, first joint of flagellum nearly one-third shorter than the second; dorsulum finely and very compactly punctured; scutellum more distinctly punctured, slightly impressed; metathorax above rather indistinctly, transversely striated, the striations most distinct in the strong medial furrow, the metapleuræ coriaceous; legs tolerably spinose; pygidial area strongly and sparsely punctured, about one-and-a-half times longer than it is wide at the base, its lateral margins but slightly reflexed. Black; three, sometimes part of the fourth basal segments of abdomen reddish; tarsi testaceous; wings fusco-hyaline; iridescent, nervures black; marginal cell truncate; face, clypeus and thorax covered with a sparse, sericeous pile; abdomen with a sparse, silvery pile. Length 10-15 mm.

♂.—Anterior margin of clypeus rounded-out, not dentate laterally; front and vertex more coarsely punctured than in the ♀; space between eyes at top about equal to the length of antennal joints, 2-4 united; antennæ shorter than the head and thorax, rather stout, first joint of flagellum about one-quarter shorter than the second; scutellum impressed; metathorax above more coarsely sculptured

than in the ♀, the metapleuræ and posterior face coarsely granulated; colored like the ♀; front, face, clypeus, and thorax more or less, with silvery pubescence; abdomen with silvery pile, not distinctly punctured. Length 8-11 mm.

Montana; Kansas. A specimen from San Diego, California, which I take to be simply a variety, has the abdomen entirely red and its sculpture a little finer.

8.—*Ancistromma divisa* Patt.

Larra divisa Patt., Bull. U. S. Geol. Survey, V, p. 368. ♀. 1879.

♀.—Anterior margin of clypeus rounded-out, bidentate laterally; front rather coarsely and closely punctured, more sparsely so medially; vertex more distinctly punctured than the sides of the front; space between the eyes at top about equal to the length of antennal joints 2-4; antennæ scarcely as long as the head and thorax united, at any rate not longer, setaceous, the first joint of the flagellum a little more than one-quarter shorter than the second; dorsulum compactly punctured; scutellum impressed, more distinctly punctured than the dorsulum; metathorax above and posteriorly coarsely and transversely striated, the upper surface strongly sulcate medially, metapleuræ granulated; legs tolerably spinose; pygidial area strongly and sparsely punctured, in length nearly twice longer than its width at the base. Black; abdomen varying from red and black to entirely red; tarsi testaceous; wings dark fuscous, iridescent; marginal cell truncate; face, clypeus and abdomen with a sparse sericeous pile; metathorax with sparse, fuscous pubescence. Length 14-16 mm.

♂.—Anterior margin of clypeus rounded-out, not dentate laterally; front and vertex more coarsely sculptured than in the ♀; space between eyes at top somewhat greater than the length of antennal joints 2-4 united; antennæ much shorter than the head and thorax united, the first joint of flagellum about one-quarter shorter than the second; dorsulum with the punctures distinct; scutellum likewise, impressed; metathorax above transversely rugose; legs feebly spinose; abdomen closely and distinctly punctured; last dorsal segment not keeled laterally; first three segments of abdomen red; front, face, clypeus and thorax more or less, with sparse silvery pubescence; abdomen with silvery pile. Length 12-13 mm.

Kansas; Nebraska; Texas.

9.—*Ancistromma consimilis* n. sp.

♀.—Anterior margin of clypeus rounded-out, armed with one tooth laterally; front closely punctured, medially the punctures are more distinct, but not sparse; vertex finely and closely punctured; space between the eyes at top about equal to the length of antennal joints 2-4 united; antennæ much shorter than the head and thorax united, the first and second joints of the flagellum about equal in length; dorsulum compactly punctured; scutellum likewise, impressed; metathorax above indistinctly transversely striated, not strongly furrowed, the striations most distinct in the furrow, the metapleuræ finely granulated, or indistinctly striated; legs strongly spinose; the spines or fore-tarsi longer and stouter than in *divisa*; pygidial area large, strongly and sparsely punctured, only about one-third longer than its width at the base. Black; abdomen entirely red; apical joints of tarsi testaceous; wings dark fuscous, iridescent; marginal cell obliquely truncate; head and thorax destitute of pubescence or pile. Length 14 mm.

♂.—Anterior margin of clypeus rounded-out, not emarginate laterally; space between eyes at top about equal to or slightly greater than, joints 2-4 of antennæ united; antennæ not reaching much beyond tegulæ, rather stout, the first joint of flagellum about one-quarter shorter than the second; dorsulum with the punctures compact; scutellum impressed; legs feebly spinose; basal segments of abdomen above not distinctly punctured, the last dorsal segment distinctly keeled laterally; first three segments of abdomen red; head and thorax without silvery pubescence; abdomen with a sericeous pile. Length 10-13 mm.

Texas. This species and *divisa* resemble each other wonderfully, and at a first glance one would suppose that they are the same species; but the short antennæ and large pygidial area of the female, and the male with the basal abdominal segments impunctate and with the last dorsal segment keeled, will easily distinguish it.

10.—*Ancistromma rugosa* n. sp.

♂.—Anterior margin of clypeus rounded-out, not dentate; front closely punctured, rather sparsely so medially; vertex with the punctures coarser and more separated than those on the front; space between the eyes at top as great or perhaps slightly greater than the length of antennal joints 2-4 united: antennæ fully as long as head

and thorax united, setaceous, the first joint of flagellum but little shorter than the second, dorsulum compactly punctured; scutellum impressed; metathorax above rugose; or coarsely rugoso-granulated, deeply and widely furrowed down the middle, metapleuræ and posterior face granulated, the posterior face with a prominent, transverse ridge near the top; legs tolerably spinose; abdomen finely and closely punctured throughout, the last dorsal segment not keeled. Black; second abdominal segment red; tarsi obscurely testaceous; wings dark fuscous, iridescent; marginal cell truncate; head, thorax and abdomen without pubescence or pile. Length 10-14 mm.

Var. Abdomen entirely black, more or less with silvery pile.

Montana; New Mexico (*Coll. Ashmead*). The longer antennæ will distinguish this species from the male of *divisa* and *consimilis* to which it is related.

11.—*Ancistromma vegeta* n. sp.

♀.—Anterior margin of clypeus subtruncate, slightly emarginate medially, and indistinctly dentate laterally; front with fine even punctures, becoming sparse medially; vertex punctured somewhat similarly to the sides of the front; space between the eyes at top, if anything, greater than the length of antennal points 2-4 united; antennæ very short, when stretched out about equal to the head and that part of thorax preceding the hind margin of tegulæ, not setaceous, the first joint of the flagellum in length about equal to the second; dorsulum with tolerably fine, distinct punctures, which are somewhat sparse medially; scutellum impressed; metathorax delicately and indistinctly striated, more strongly so on metapleuræ and posterior face, the upper surface distinctly, but not very strongly furrowed down the middle; legs strongly spinose; pygidial area strongly and sparsely punctured, one-half again longer than it is broad at base. Black; apical joints of tarsi testaceous; wings dark fuscous, iridescent; marginal cell obliquely truncate; head, thorax and abdomen, without pubescence. Length 15 mm.

♂.—Anterior margin of clypeus rounded-out, slightly emarginate medially; front and vertex with tolerably strong, separated punctures; space between eyes at top greater by far than the length of antennal joints 2-4 united; antennæ about as long or a little longer than in the ♀, the first joint of the flagellum about one-quarter shorter than the second; legs tolerably spinose; abdomen very finely

and closely punctured; last dorsal segment not keeled, the eighth ventral segment emarginate; colored like the ♀. Length 11 mm.

Colorado. This species is peculiar in having the eighth ventral plate of the ♂ emarginate, being the only one of our species of *Anacistromma* possessing that character. From all the other species it may be distinguished by the robust form, deep-black color and very short antennæ of ♀.

TACHYTES Panzer.

Tachytes Panz., Krit. Rev. II. p. 129, 1806.

Lyrops Illig. Ross., Faun. Etrusc. ed. 2, II, p. 161, 1807.

Body generally stout, the amount of pubescence with which it is clothed variable, some of the species resembling, in a certain degree, bees; anterior femora of the ♂ beneath near the base entire or emarginate; comb on fore tarsi composed of short, thorns or spines; pygidial area large, covered with appressed pubescence, mandibles emarginate beneath; their inner margin with one or two teeth; antennæ stout, shorter than in the two following genera; eyes converging towards the vertex, the space between them at that point differing in the various species; fore ocellus round; the hind pair very elongate, placed obliquely and with the upper end forming a hook or flat spiral; front not raised along the inner orbits as in Notogonia, etc., if anything it is depressed; sculpture of the thorax not strong; last ventral plate of ♂ with a rounded, wide emargination; marginal cell lanceolate, its apex slightly obtuse, the appendiculation small and often indistinct, three submarginal cells, the second of which receives both recurrent nervures; tibiae and tarsi of all the legs armed with spines; spines composing comb on fore tarsi generally not longer than the second joint of the said tarsi, and are thorn-like, not at all flexible in appearance; claws not very long; metanotum shorter than the dorsulum.

Our species of this genus have been monographed previously;⁵ therefore I will simply reproduce the synoptical tables here. In the first place the genus may be divided into two sections as follows:

- Fore coxæ of ♂ simple, the fore femora of the same sex, beneath at base, entire; thorax of ♀ generally densely pubescent. Appearance bee-like SECTION I.
- Fore coxæ of ♂ with an elongated process, the fore femora of the same sex beneath at the base emarginate; thorax of males not densely pubescent. Appearance not bee-like SECTION II.

⁵Trans. Amer. Ent. Soc., XIX, p. 234, 1892.

The females of the first section are generally short, robust insects, while those of section II are rather long and slender and never have the clypeus produced medially as in the majority of those of the first section. In some respects section II agrees with *Tachysphex*, but the spines on fore tarsi of female are not long and flexible, and the pygidium is hairy.

SECTION I.

FEMALES.

- 1—Clypeus with the anterior margin in the middle, produced into a large quadrate tooth or lobe, and with several smaller teeth laterally 2
 Clypeus with the anterior margin not or scarcely produced into a lobe, at the most thickened in the middle 7
- 2—Metanotum strongly sulcate medially. 6
 Metanotum not strongly sulcate medially 3
- 3—Third joint of antennæ about one-quarter longer than the fourth. 4
 Third joint of antennæ equal to, or but little longer than the fourth 5
- 4—Thorax densely clothed with golden yellow pubescence so that the sculpture of metanotum is hidden. Length 18-22 mm
 *validus*.
 Thorax sparsely clothed with grayish pubescence; metanotum finely granulated (four hind tibiæ with a dark stripe within). Length 12-14 mm. *harpax*.
- 5—Median process of clypeus divided into two distinct lobes; space between the eyes at the top equal to the length of joints two and three of antennæ, the latter joint, in length about equal to the fourth; front and thorax with golden pubescence . *prædator*.
 Median process of clypeus not bilobed, its apex simply incurved; third antennal joint slightly longer than the fourth; front and thorax clothed with silvery-gray pubescence *calcaratus*.
- 6—The sulcus on metanotum very wide; scutellum scarcely impressed; pygidium with a coppery lustre *mandibularis*.
 The sulcus on metanotum not wide; scutellum distinctly impressed; pygidium silvery *breviventris*.
- 7—Abdomen black 8
 Abdomen in part red; head and thorax clothed with dense silvery pubescence *fulviventris*.
- 8—Abdomen dorsally with four silvery bands; front silvery 9
 Abdomen dorsally with but three silvery bands; longer spur of hind tibiæ in length about equal to the first joint of the hind tarsi; front golden. *crassus*.
- 9—Longer spur of hind tibiæ longer than the first joint of the hind tarsi; apex of femora, tibiæ and tarsi, yellowish-ferruginous. *columbiæ*.

Longer spur of hind tibiæ, in length, about equal to the first joint of hind tarsi; legs black, tibiæ and tarsi with silvery pile, the apical portion of the tarsi ferruginous. *pepticus*.

MALES.

- 1—Flagellum with the basal joints not or scarcely rounded out beneath, the apical joints, except in *crassus* and *pepticus*, abnormal 8
- Flagellum with the basal joints distinctly rounded out beneath, the apical joints normal 2
- 2—Anterior margin of clypeus, in the middle, not produced into a tooth or lobe, at the most simply thickened. 4
- Anterior margin of clypeus in the middle produced into a tooth or lobe 3
- 3—Metanotum slightly sulcate; thorax densely pubescent; median process of clypeus not prominent, strongly impressed, having the appearance of being bituberculate *validus*.
- Metanotum distinctly and rather strongly sulcate; thorax sparsely pubescent; median process of clypeus strong, not bituberculate. *breviventris*.
- 4—Last dorsal abdominal segment tufted laterally with dark hair. 7
- Last dorsal abdominal segment not tufted with dark hair . . . 5
- 5—Hind tarsi not at all spinose; lateral teeth of clypeus large and distinct. *mandibularis*.
- Hind tarsi distinctly spinose 6
- 6—First joint of flagellum shorter than the second; space between the eyes at top narrower than usual; head and thorax densely clothed with golden pubescence. *predator*.
- First joint of flagellum not shorter than the second.
- Space between the eyes at the top not greater than the length of antennal joints 2 and 3 united; longest spur of hind tibiæ longer than the first hind tarsal joint; abdomen not at all red *calcaratus*.
- Space between the eyes at the top greater than the length of antennal joints 2 and 3 united; longest spur of hind tibiæ decidedly shorter than the first joint of hind tarsi; abdominal segments with a transverse band of reddish *exornatus*.
- 7—Emargination of last ventral plate very narrow; first joint of flagellum in length about equal to the second; head and thorax with golden pubescence *harpax*.
- Emargination of last ventral plate broad and round; first joint of flagellum shorter than the second; head and thorax with silvery pubescence *columbiæ*.
- 8—Apical joints of the antennæ normal 9
- Apical joints of the antennæ abnormal 10
- 9—Apex of femora, tibiæ and tarsi, yellow-ferruginous; hind tarsi very feebly spinose *crassus*.

Legs, except apex of tarsi, black; hind tarsi rather strong spinose.

- *pepticus*.
 10—Abdomen in part red 11
 Abdomen entirely black *fulviventris* var.
 11—Two apical joints of the antennæ narrow and elongate, much narrower than joints 9-11, which are visibly broadened . *fulviventris*.
 Two apical joints of the antennæ somewhat spatulate, broader than the two preceding joints *spatulatus*.

1.—*Tachytes validus* Cress.

T. validus Cress., Tr. Am. Ent. Soc. IV, p. 216. ♀ ♂

T. breviventris Patt., Proc. Bost. Soc. Nat. Hist. XX, p. 392.

Texas; Illinois (*Robertson*).

2.—*Tachytes mandibularis* Patt.

T. mandibularis Patt., *ibid.*, p. 394, ♀ ♂.

Connecticut to Florida; Nebraska, Montana.

3.—*Tachytes harpax* Patt.

T. harpax Patt., *ibid.*, p. 395. ♀ ♂.

Vermont to New Jersey; So. Dakota.

4.—*Tachytes calcaratus* Fox.

T. calcaratus Fox, Tr. Amer. Ent. Soc. XIX, p. 239, ♀ ♂.

New Jersey (in August) and Florida; Montana (?).

5.—*Tachytes exornatus* n. sp.

♂.—Anterior margin of the clypeus strongly rounded-out medially, with one large, blunt, lateral tooth; third joint of antennæ about equal to the fourth, possibly a little longer; basal joints of flagellum tolerably well rounded-out, but not so strongly as in the ♂ of *calcaratus*; space between the eyes at the top greater than the length of antennal joints 2 and 3 united; pubescence of the front and clypeus golden; dorsulum and scutellum very closely and indistinctly punctured; impressed medial line on metanotum well marked; tibiæ and tarsi spinose; longer spur of hind tibiæ decidedly shorter than the first hind tarsal joint; emargination of eighth ventral plate small; black; scape, tegulæ, legs (except coxæ, trochanters and the fore and medial femora above), and a transverse band on the abdominal segments above and beneath, reddish; wings yellow, the apical margins broadly violaceous; the thorax densely clothed with grayish-golden pubescence. Length 17 mm.

Las Cruces, N. Mexico, August 16th (*T. D. A. Cockerell*.)

6.—*Tachytes breviventris* Cress.

T. breviventris Cress., l. c. p. 216, ♂; Fox, l. c. p. 239, ♀ ♂.

Texas and Massachusetts.

- 7.--*Tachytes praedator* Fox.
T. praedator Fox, l. c. p. 240, ♀ ♂.
 Virginia and Texas.
- 8.--*Tachytes columbiæ* Fox.
T. columbiæ Fox, l. c. p. 241, ♀ ♂.
 District of Columbia, Virginia, New Jersey.
- 9.--*Tachytes crassus* Patt.
T. crassus Patt. l. c. p. 393, ♀; Fox, l. c. p. 241, ♀ ♂.
 Connecticut, New Jersey (August), So. Dakota, (*Aldrich*).
- 10.--*Tachytes pepticus* Say.
Lyrops pepticus Say, Bost. Journ. I, p. 371. ♀ ♂.
Tachytes pepticus Sm., Cat. Brit. Mus. Hym. IV, p. 308.
 From Illinois westward.
- 11.--*Tachytes fulviventris* Cress.
T. fulviventris Cress., Proc. Ent. Soc. Phila. IV, p. 466. ♀.
T. cælebs Patt., Bull. U. S., Geol. Survey, V, p. 355. ♂.
 From Nebraska westward.
- 12.--*Tachytes spatulatus* Fox.
T. spatulatus Fox, l. c. p. 243. ♂.
 Nevada.

SECTION II.

FEMALES.

- 1—Greater part of femora reddish 2
 Greater part of femora or the legs entirely, black 3
- 2—Abdomen black, the three first dorsal abdominal segments only
 with silvery pile at apex *distinctus*.
 Abdomen, except some black blotches on dorsal segments three,
 four and five, entirely reddish; the first four abdominal seg-
 ments with silvery pile at apex. *distinctus* var.
- 3—First joint of fore tarsi much contracted basally, apical portion of
 first three abdominal segments silvery *contractus*.
 First joint of fore tarsi not contracted 4
- 4—First two dorsal segments of abdomen, apically, silvery; legs, ex-
 cept tarsi, black, the tibiæ with dense silvery pubescence;
 metanotum distinctly punctured *aurulentus*.
 First four or five segments silvery 5
- 5—Space between eyes at top about equal to length of joints 2 and 3
 of antennæ united 6
 Space between eyes at top greater than length of joints of the an-
 tennæ 2 and 3 united. 7
- 6—Abdomen reddish, or red and black; hind tibiæ armed outwardly
 with a series of short, black, stout and blunt thorns
 *abdominalis*.
 Abdomen black; posterior tibiæ armed outwardly with a series of
 whitish, long and rather acute thorns *sericatus*.

- 7—Mandibles very broad and flat, with an exceedingly narrow notch; abdomen black *obscurus*.
 Mandibles of the normal form, with a broad notch 8
 8—Metanotum not at all furrowed; abdomen varying from red and black to entirely ferruginous; size also variable. . *rufofasciatus*.
 Metanotum more or less furrowed 9
 9—Space between eyes at top greater than the length of antennal joints 2 and 3 united; clypeus not dentate *obductus*.
 Space between eyes at top a little less than the length of second and third antennal joints united; clypeus armed with a large prong on each side *mergus*.

MALES.

- 1—Wings yellow, with the apical portion dark 2
 Wings not yellow, hyaline or subhyaline 3
 2—Third joint of antennæ nearly one-third longer than the fourth; metanotum distinctly punctured; tibiæ and tarsi black
 *aurulentus*.
 Third joint of antennæ but little longer than the fourth; metanotum not punctured; apex of femora, tibiæ and tarsi yellow ferruginous *distinctus*.
 3—Abdomen and legs more or less red; third joint of antennæ in length about equal to the fourth; metanotum slightly furrowed; femora, except base, reddish *rufofasciatus*.
 Abdomen and legs black.² 4
 4—Space between eyes at top much less than the length of antennal joints 2-4 united 5
 Space between eyes at top about equal to the length of antennal joints 2-4 united; apical margins of the wings fuscous. . *parvus*.
 5—Notch on outer edge of mandibles very narrow; body not densely silvery sericeous *obscurus*.
 Notch on outer edge of mandibles as usual; body rather densely clothed with silvery sericeous pile *sericatus*.

13.—*T. aurulentus* Fab.

Larra aurulenta Fab., Syst. Piez. p. 220.

Lyrops aurulenta Say, Bost. Journ. I, p. 371.

? *Tachytes aurulentus* Lep., Hym. III, p. 247.

Tachytes aurulentus Sm., Catal. Brit. Mus. IV, p. 306.

Liris coxalis Patton, Ent. News, III, p. 90. ♀ ♂.

New Jersey (July and August) to Florida, westward to Texas and Missouri.

14.—*Tachytes contractus* Fox.

T. contractus Fox, l. c. p. 245, ♀.

Georgia.

² *T. minimus* has been excluded from this table as it is a species of *Tachysphex*.

15.—*Tachytes distinctus* Sm.*T. distinctus* Sm., Cat. Brit. Mus. Hym. IV, 307. ♀.*T. elongatus* Cr., Tr. Am. Ent. Soc. IV, p. 215. ♂.

Philadelphia (Smith) to Florida, westward to California. *T. elongatus*, is according to Mr. Charles Robertson, who has taken it in copulation with *distinctus*, the male of the latter. A ♀ specimen in the coll. of the U. S. National Museum from Arizona, has the abdomen almost entirely red and the first four dorsal abdominal segments with silvery pile at apex.

16.—*Tachytes sericatus* Cress.*T. sericatus* Cress., ibid. p. 216. ♀ ♂.

Texas, Georgia.

17.—*Tachytes rufofasciatus* Cress.*T. rufofasciatus* Cress., ibid. p. 217. ♂; Fox, l. c. p. 247. ♀ ♂.

Georgia to Texas, Nebraska, California.

18.—*T. abdominalis* Say.*Larra abdominalis* Say, West. Quart. Rep. II, p. 77. ♀.*Larrada abdominalis* Cr., loc. cit. I, p. 379.*Tachytes abdominalis* Cress., loc. cit. IV, p. 217.

Arkansas (Say), Texas, Mexico.

19.—*Tachytes obscurus* Cress.*obscurus* Cress., l. c. p. 217. ♀.*T. texanus* Cress., ibid. p. 217. ♂.

District of Columbia to Mexico. *T. texanus* Cress., is the ♂ of this species.

20.—*Tachytes parvus* Fox.*T. parvus* Fox, l. c. p. 249. ♂.

New Jersey (August). May be the ♂ of either of the two following species.

21.—*Tachytes obductus* Fox.*T. obductus* Fox, l. c. p. 250. ♀.

Tennessee.

22.—*Tachytes mergus* Fox.*T. mergus* Fox, l. c. p. 250. ♀.

New Jersey (July).

UNIDENTIFIED.

Tachytes dives* Lep.T. dives* Lep., Hym. III, p. 247. ♀.

"Carolina. Museum of M. Serville."

TACHYSPHEX Kohl.*Larrada* Sm., Cat. Hym. Brit. Mus., p. IV, p. 274. 1856.

Larra Patton, Proc. Bost. Soc. Nat. Hist. XX. p. 385; Cresson, "Synopsis," p. 114.

Tachysphex Kohl, Berl. Ent. Zeitschrift. XXVII, H. 1, 1883.

Form usually slender and only feebly clothed with pubescence, never bee-like as are the typical species of the genus *Tachytes*; mandibles distinctly emarginate on outer side, bidentate within, their apices simple; antennæ on the average more slender than in *Tachytes*; eyes converging towards the vertex; ocelli lying on a swelling, the anterior is round and distinct, the posteriors reniform and placed obliquely; front never raised along the inner eye-margins; face bituberculate behind antennæ; collar not reaching the level of the dorsulum; on the last dorsal abdominal segment is a well developed pygidium in the ♀, which is scarcely developed in the ♂, and is entirely naked in both sexes; the median cell of the hind wings reaches proportionately not as far towards the apex of wing as it does in *Tachytes*; the cubital vein originates behind the apex of the submedian cell; tibiæ and tarsi spinose; tarsal comb of ♀ very long and flexible; fore femora of ♂ at base distinctly emarginate; middle tibiæ with one spur; fore tibiæ on outer side spinose; last ventral plate of ♂ emarginate. Size variable.

This genus is well represented in the United States as it is also in Europe. Those of our species heretofore described have in every case been referred to the genus *Larra*. The form of the hind ocelli will distinguish it most effectually from *Ancistromma* and *Tachytes*.

FEMALES.

- 1—Space between the eyes at top less than the length of antennal joints 2 and 3 united.
 Metathorax above granulated; femora and tibiæ entirely black.
 Length 12 mm. *amplus*.
 Metathorax above strongly reticulated; legs almost entirely red.
 Length about 9 mm. *Belfragei*.
 Space between eyes at top about equal to length of antennal joints 2 and 3 united 2
 Space between eyes at top greater than the length of antennal joints 2 and 3 united 11
- 2—Metathorax strongly reticulated above; abdomen entirely red *texanus*.
 Metathorax coarsely wrinkled above; abdomen about equally red and black *quebecensis*.
 Metathorax not strongly reticulated or wrinkled above, at the most finely granulated or striated 3
- 3—Hind legs reddish (anterior margin of clypeus rounded out).
 Pygidial area about two-and-a-half times longer than it is broad at the base; tarsi armed with spines at apex of joints only *Ashmeadii*.
 Pygidial area not more than twice as long as it is broad at

- the base; tarsi strongly spinose, especially the first joint of the posteriors *spinosus*.
- Hind legs black 4
- 4—Anterior margin of the clypeus strongly crenated . . . *crenulatus*.
Anterior margin of clypeus not crenated, at the most with two teeth laterally 5
- 5—Greater part of abdomen reddish 6
Abdomen black, or equally red and black 9
- 6—Pygidium scarcely twice as long as it is broad at the base *triquetrus*.
Pygidium decidedly more than twice longer than it is broad at base 7
- 7—Antennæ long, not setaceous scarcely acuminate apically *antennatus*.
Antennæ as usual, acuminate apically 8
- 8—Anterior margin of clypeus not or but very slightly emarginate.
Dorsulum very closely punctured; metathorax above finely coriaceous; front finely granulated *tarsatus*.
Dorsulum shining, with the punctures separated; metathorax above finely granulated; front rather coarsely granulated *semirufus*.
Anterior margin of clypeus distinctly emarginate; front exceedingly finely granulated *exsectus*.
- 9—Longer spur of hind tibiæ shorter than the first joint of hind tarsi; abdomen about equally red and black 10
Longer spur of hind tibiæ decidedly longer than the first joint of hind tarsi; abdomen with segments broadly testaceous, with at least four silvery bands *mundus*.
- 10—Metathorax above granulated; distance between the third transverso-cubital nervure and the apex of marginal cell is usually greater than the width of the third submarginal cell at the top. *tenuipunctus*.
Metathorax above more or less longitudinally striated or wrinkled; distance between the third transverso-cubital nervure and the apex of the marginal cell less than the width of the third submarginal cell at the top *decorus*.
- 11—Space between eyes at top equal to or greater than the length of antennal joints 3 and 4 united 12
Space between the eyes at top less than the length of antennal joints 3 and 4 united 15
- 12—Anterior margin of clypeus produced medially into a short lobe. 13
Anterior margin of clypeus not at all produced into a lobe . . 14
- 13—Wings hyaline, iridescent; metathorax granulated above . *fusus*.
Wings, except base, fuscous; metathorax above coarsely reticulated *fumipennis*.
- 14—Metathorax, above, granulated; usually the last two abdominal segments red *terminatus*.

- Metathorax, above, strongly reticulated; usually the last segment only red *apicalis*.
- 15—Greater part of abdomen black 16
 Greater part of abdomen red or equally red and black 18
- 16—Metanotum reticulated.
 Vertex and dorsulum coarsely punctured; tarsi black . . *acutus*.
 Vertex and dorsulum very finely punctured; tarsi reddish on apical half *nigrrior*.
 Metanotum smooth or finely granulated, opaque 17
- 17—With dense sericeous pile; wings subhyaline *punctifrons*.
 Without sericeous pile, deep black; wings dark fuscous . *aethiops*.
- 18—Tibiæ, tarsi and femora, in part, red *posterus*.
 Tibiæ and femora black 19
- 19—Metanotum strongly reticulated *asperatus*.
 Metanotum longitudinally striated *sculptilis*.
 Metanotum granulated or coriaceous 20
- 20—Abdomen not at all compressed, depressed throughout . . . 21
 Abdomen compressed apically *montanus*.
- 21—Pygidium in length, but little, if anything, greater than twice its width at the base. Length 6 mm. *pauvillus*.
 Pygidium in length, greater than twice its width at base; metathorax above finely granulated *consimilis*.

MALES.

- 1—Space between the eyes at top about equal to the length of antennal joints 2 and 3 united 2
 Space between the eyes at top greater than the length of antennal joints 2 and 3 united 3
- 2—Abdomen black; apex of femora, tibiæ and tarsi entirely, reddish yellow *minimus*.
 Abdomen on basal half red; femora and tibiæ not reddish. *æqualis*.
- 3—Abdomen entirely black, except extreme apex in some few species 4
 Abdomen red or black and red 10
- 4—Metathorax above smooth or indistinctly sculptured 5
 Metathorax above coarsely sculptured 6
- 5—Lateral angles of produced portion of anterior margin of clypeus obtuse; metathorax above without a longitudinal, impressed line; clothed with sericeous pile *punctifrons*.
 Lateral angles of produced portion of anterior margin of clypeus acute; metathorax above with a distinct, longitudinal, impressed line; deep black, without sericeous pile *aethiops*.
- 6—Space between the eyes at top decidedly less than the length of antennal joints 2-4 united, but little greater than the length of joints 2 and 3 *mundus*.
 Space between the eyes at top as great or greater than the length of antennal joints 2-4 united 7

- 7—Front, though distinctly punctured, yet not coarsely so; space between eyes at top about equal to the length of antennal joints 2-4 united 8
 Front coarsely punctured; space between eyes at top greater than the length of antennal joints 2-4 united 9
- 8—Thorax with silvery pubescence; front with an indistinct, medial impressed line *acutus*.
 Thorax without silvery pubescence; front with a distinct, medial, impressed line *nigrior*.
- 9—Abdomen ventrally rather strongly punctured; metapleuræ coarsely striated *apicalis*.
 Abdomen ventrally very finely punctured; metapleuræ finely striated *fusus* and *terminatus*.
- 10—Occiput remarkably depressed in the middle, so that the portion behind each eye is much swollen *inusitatus*.
 Occiput normal 11
- 11—Metapleuræ coarsely striated.
 Antennæ elongate, the third joint fully twice longer than broad; space between the eyes at top less than the length of joints 3 and 4 united *amplus*.
 Antennæ short, stout, the third joint about as broad as long; space between eyes at top about equal to the length of antennal joints 3-5 united *texanus*.
 Metapleuræ not coarsely striated 12
- 12—Space between eyes at top about equal to joints 3 and 4 united . 13
 Space between eyes at top less than the length of joints 3 and 4 . 17
- 13—Flagellum rather short, stout, thickened medially . . . *spissatus*.
 Flagellum long, slender, not thickened medially 14
- 14—Metathorax above reticulated *consimilis*.
 Metathorax above not reticulated, at the most finely granulated. 15
- 15—Abdomen entirely red *tarsatus*.
 Abdomen black apically 16
- 16—Size small, slender; front finely granulated. Length 6 mm.
 *parvulus*.
 Size medium, robust; front more punctured than granulated. Length 10 mm. *compactus*.
- 17—Upper surface of metathorax as long as the dorsulum; form slender *dubius*.
 Upper surface of metathorax shorter than the dorsulum; form stout 18
- 18—Front coarsely and distinctly punctured *montanus*.
 Front granulated, or else it is so very closely punctured that it appears so 19
- 19—Upper surface of metathorax coarsely and irregularly wrinkled. *quebecensis*.
 Upper surface of metathorax not wrinkled 20

- 20—Emargination of fore femora rounded. Length 7 mm. . *exsectus*.
 Emarginations of fore femora more or less angular. Length 10
 mm. *compactus*.

1.—*Tachysphex Ashmeadii* n. sp.

♀.—Clypeus with sparse, large punctures, its fore margin rounded-out, subtruncate medially and scarcely produced into a tooth laterally; front coarsely and closely punctured; vertex finely punctured, the occiput even more so; space between the eyes at top about equal to the length of antennal joints 2 and 3 combined; first joint of the flagellum about one-fifth shorter than the second; dorsulum with rather strong, close punctures, depressed medially almost its full length; scutellum convex, not impressed, punctured like the dorsulum; metathorax above finely coriaceous, on the sides and posteriorly very finely striated, the posterior face with a large, triangular fovea at the top; legs ample, tolerably well armed with spines, which except at the apex of the joints, are lacking on the hind tarsi; marginal cell not truncate at apex, more or less pointed; width of the second submarginal cell at the top greater than the width of the third submarginal at the same place; abdomen about as long as the head and thorax together, seemingly impunctate; pygidial area flat, with some indistinct, large, sparse punctures, its length about two-and-a-half times greater than its width at the base. Black; clypeus anteriorly, mandibles in the middle and spot on scape at apex beneath, reddish-yellow; all the legs (except coxæ, trochanters and anterior femora above) and the abdomen entirely, bright red; upper half of clypeus, face, front and thorax, especially the mesopleuræ, with silvery pubescence; femora and abdomen with a silvery pile, which is most conspicuous on apical half of dorsal segments 1-4 when viewed from behind; tegulæ testaceous; wings subhyaline, iridescent, nervures testaceous. Length 10 mm.

San Diego, California, August 23rd, 1891 (*Dr. F. Blaisdell*). It gives me pleasure to dedicate this pretty species to Mr. Wm. H. Ashmead, as a slight recognition of the many favors which I have received from him.

2.—*Tachysphex Belfragei* Cress.

Larrada Belfragei Cr., Tr. Amer. Ent. Soc. IV, 1872, p. 215. ♀.
Larra Belfragei Patton, l. c. p. 389.

♀.—Clypeus with large sparse punctures, its anterior margin rounded out, emarginate medially and produced into two teeth at

each extreme side; front very finely and closely punctured, appearing granulated, the punctures on the vertex are also fine but are not so close as those on the front; space between the eyes at top a little less than the length of antennal joints 2 and 3 united; first joint of the flagellum a little more than one-fifth shorter than the second; dorsulum with distinct, close punctures, its medial portion only depressed anteriorly and then not strongly; scutellum convex, not impressed, punctured like the dorsulum; metathorax above strongly reticulated, especially at the base, the sides and posteriorly finely striated, the posterior face with the fovea elongate, acute beneath and broad at the upper end; legs rather stout, well armed with spines; marginal cell truncate; space between the second and third submarginal cells at the top about equal; abdomen ———?.⁶ Black; spot on scape, at apex beneath, mandibles in the middle, and legs except coxæ, trochanters and the fore and medial femora above, red; front, face, clypeus and the thorax more or less clothed with silvery pubescence, brightest and densest on the face, clypeus and mesopleuræ; wings subhyaline, iridescent, nervures testaceous; tegulæ yellow. Length about 9 or 10 mm.

Texas. The type of this species, which seems to be very rare, is in the collection of the United States National Museum.

3.—*Tachysphex posterus* n. sp.

♀.—Clypeus with large, deep punctures, its anterior margin rounded-out, subtruncate medially, and not dentate laterally; front finely and closely punctured below the middle, but above that the punctures are strong and separated; the vertex more finely punctured; space between the eyes at the top greater than the length of antennal joints 2 and 3 united, but less than the length of joints 3 and 4; first joint of the flagellum about one-third shorter than the second; dorsulum with distinct, separated punctures (the punctures are much more distinct than in either of the two preceding species), depressed in the middle for about two-thirds its length, the punctures most compact anteriorly; scutellum convex, not impressed, punctured similarly to the posterior portion of the dorsulum; metathorax above finely

⁶ The abdomen of the only specimen seen by me, the type of the species, is lost. I take the following from the original description: "abdomen fulvo-ferrugineus, with a very fine silvery sericeous pile, more dense at the sides and apex of the segments, the three apical segments black."

coriaceous, the sides likewise, the posterior face finely and transversely striated; legs ample, tolerably well armed with spines; abdomen above impunctate, the last two ventral segments sparsely punctured; pygidial area flat, with distinct, large, sparse punctures, its length is about two-and-a-half times longer than it is wide at the base. Black; anterior margin of the clypeus, mandibles except base, spot on scape at apex beneath, the tarsi, medial tibiæ, the hind legs except coxæ and trochanters, and the abdomen red; face, front, clypeus and the thorax, especially in the sutures, with silvery pubescence; the femora and abdomen with silvery pile, which is most profuse on the abdomen; tegulæ and nervures testaceous; wings subhyaline, the marginal cell obliquely truncate, width of the third submarginal cell at the top greater than the width of the second at the same place. Length 12 mm.

State of Washington.

4.—*Tachysphex spinosus* n. sp.

♀.—Clypeus with large deep punctures, its fore margin rounded out, and armed with a tooth laterally; front finely and closely punctured throughout; the vertex with the punctures finer; space between the eyes at the top about equal to the length of antennal joints 2 and 3 united; first joint of the flagellum about one-quarter shorter than the second; dorsulum with tolerably strong and very close punctures, depressed in the middle for about two-thirds its length, the punctures closest anteriorly; scutellum punctured like the dorsulum, not impressed; metathorax above finely coriaceous, the sides likewise, but shining, the posterior face transversely striated; legs strongly armed with spines, especially the first joint of the tarsi; abdomen above impunctate, the last two ventral segments with large, sparse punctures; pygidial area somewhat convex, with indistinct scattered punctures, its length is about twice or perhaps less than twice greater than its width at the base. Black; mandibles in the middle, spot on scape beneath at apex and fore tarsi reddish-testaceous; four hind legs except the coxæ, trochanters and femora and base of tibiæ of medial legs, and the abdomen bright red; face, clypeus and thorax more or less, with silvery pubescence; femora and abdomen with silvery pile, which is most obvious on the abdomen when viewed from behind; tegulæ testaceous; wings subhyaline, iridescent, the nervures black; marginal cell subacute at apex; width of the

third submarginal cell at the top nearly twice greater than the width of the third at the same place. Length 11 mm.

Los Angeles County, California. (Collection U. S. National Museum.)

5.—*Tachysphex crenulatus* n. sp.

♀.—Anterior margin of the clypeus distinctly crenulated; front finely granulated throughout; vertex with very fine and close punctures; space between the eyes at top about equal to the length of antennal joints 2 and 3 united; first and second joints of the flagellum equal in length; dorsulum very closely punctured, the punctures much stronger than those on the vertex; scutellum slightly impressed anteriorly; metathorax above finely granulated, the metapleuræ indistinctly striated, as is likewise the posterior face; legs stout, strongly spinose; abdomen above impunctate, the second and last ventral segments with sparse punctures; pygidial area with large, scattered punctures, depressed on apical half, its length is about twice greater than its width at the base. Black; mandibles in the middle, and indistinct spot on scape at apex beneath and the tarsi, obscure reddish; abdomen dark red; tegulæ testaceous; wings subhyaline, the nervures black; marginal cell subtruncate at apex; space between the second and third submarginal cells at the top about equal. Length 11 mm.

California.

6.—*Tachysphex tarsatus* Say.

Larra tarsata Say, Western Quarterly Reporter, II, p. 78.

Larrada tarsata Cress., Proc. Ent. Soc. Phila., IV, p. 464. ♀.

♀.—Anterior margin of the clypeus either slightly emarginate in the middle or entire, armed with one tooth laterally; front finely granulated; punctures on the vertex fine; space between the eyes at the top about equal to the length of antennal joints 2 and 3 united, perhaps a little greater; first joint of the flagellum about one-third shorter than the second; dorsulum more finely punctured than the front, depressed in the middle anteriorly; scutellum punctured like the dorsulum, not impressed; metathorax above finely coriaceous, the metapleuræ indistinctly striated, the posterior face transversely striated, with a long, deep, longitudinal fovea in the middle; legs tolerably well armed with spines; abdomen above impunctate, the last two ventral segments sparsely punctured; pygidial area not so distinctly

defined as in the allied species, about two-and-a-half times longer than it is broad at the base, with distinct, scattered punctures. Black; mandibles in the middle and the apical joints of the tarsi obscure reddish; coloration of abdomen varying from bright red to nearly black; wings subhyaline, iridescent, the nervures black; marginal cell obliquely truncate; width of the second and third submarginals at the top variable. Length 10-11 mm.

♂.—Front coarsely granulated; vertex and clypeus with very close punctures; space between the eyes at top about equal to length of antennal joints 3 and 4 united; antennæ rather stout and long, the first joint of the flagellum nearly one-half shorter than the second; dorsulum with very close punctures; metathorax above and on the sides finely coriaceous, the posterior face indistinctly striated; legs feebly spinose, the emargination on fore femora large; colored like the female except that the legs are more red; the wings are clearer and more iridescent. Length 7-8 mm.

New Jersey to Florida, westward to Nevada. Although the width of the second and third submarginal cells at the top is variable, yet in the majority of specimens examined, the second is by far the broadest. *Larrada laevifrons* Smith is evidently closely related if not identical with this species.

7.—*Tachysphex texanus* Cress.

Larrada texana Cr., Trans. Amer. Soc., IV, 214. ♀ ♂.

Larra texana Patt., l. c. p. 389.

♀.—Anterior margin of the clypeus subtruncate, the lateral angles sharp, but not dentate; front finely granulated; vertex with fine, distinct punctures; space between the eyes at the top just about equal to the length of antennal joints 2 and 3 united; first joint of the flagellum scarcely one-fourth shorter than the second, which is shorter than either the third or fourth joints; dorsulum with fine, even, distinct punctures, which are closest posteriorly; scutellum a little more strongly punctured, slightly impressed; metathorax above finely reticulated, on the sides and behind strongly striated; legs rather slender, in comparison to the preceding species, strongly armed with spines; abdomen above impunctate, the last ventral segment sparsely punctured; pygidial area tolerably well defined, with sparse, distinct punctures, its length is scarcely two-and-a-half times longer than it is wide at the base. Black; mandibles in the middle, spot on scape at apex beneath and the tarsi, obscure red; abdomen

bright red; head in front and thorax very sparsely clothed with silvery pubescence; abdomen also very sparsely clothed with silvery pile; wings subhyaline, nervures black; marginal cell subtruncate; width of the second submarginal cell at the top decidedly greater than that of the third submarginal at the same place. Length 9-10 mm.

Texas; Colorado. A specimen from Georgia which I refer to this species has the dorsulum punctured similarly to *T. tarsatus* Say. From California there are two specimens, which I at first believed to be distinct, that have the front punctured, the dorsulum rather sparsely punctured and the sculpture of the metanotum bordering on both reticulated and granulated. The male of this California form is as follows:

♂.—Front coarsely granulated; vertex with fine, rather sparse punctures, the clypeus with fine and close punctures; space between the eyes at top about equal to length of antennal joints 2 to 4 united; antennæ short and stout, the first joint of the flagellum scarcely one-half shorter than the second; dorsulum with distinct, tolerably strong punctures; metathorax above coarsely granulated or finely reticulated, on the sides and behind distinctly striated; legs feebly spinose; colored like the ♀; abdomen with distinct silvery pile. Length 7 mm.

8.—*Tachysphex spissatus* n. sp.

♂.—Front strongly granulated; vertex finely and closely punctured; space between the eyes at top about equal to the length of antennal joints 3 and 4 united; clypeus subtruncate, its interior half with coarse punctures; antennæ rather long, distinctly thickened medially, the first joint scarcely greater than one-half the length of the second, which is a little shorter than the third; dorsulum very finely and closely punctured, the scutellum likewise, and not impressed; metathorax above coriaceous, the sides finely and indistinctly striated. the posterior face more distinctly so; legs feebly spinose, the emargination of fore femora large and sub-angular; abdomen impunctate, the last dorsal segment with distinct punctures. Black; scape beneath at apex, mandibles in the middle and apical joints of the tarsi obscure red; segments 1-3 of the abdomen bright red; tegulæ testaceous; face, front, clypeus and thorax with silvery pubescence; abdomen with silvery pile; wings subhyaline, iridescent.

nervures testaceous, marginal cell subtruncate; second submarginal cell at the top about equal to, or perhaps slightly greater than the width of the third at the same place. Length $7\frac{1}{2}$ mm.

California.

9.—*Tachysphex dubius* n. sp.

♂.—Front finely granulated; vertex finely and closely punctured; space between the eyes at top greater than the length of antennal joints 2 and 3 united, but less than joints 3 and 4; clypeus in the middle of anterior margin a little produced, not coarsely punctured on anterior half; antennæ not or but very slightly thickened medially; the first joint of the flagellum more than one-third shorter than the second; dorsulum very finely and closely punctured; metathorax above coriaceous, the sides indistinctly striated, the hind face more distinctly so; legs feebly spinose, the emargination of fore femora rounded; last dorsal segment of abdomen finely and distinctly punctured. Black; scape beneath at apex, mandibles medially and last joint of tarsi obscure reddish; segments 1-3 of abdomen bright red; face, front, clypeus and thorax with silvery pubescence; abdomen with silvery pile; wings dark subhyaline, iridescent, nervures black; marginal cell obliquely truncate; width of the second and third submarginal cells at the top variable. Length 8-9 mm.

Camden County, New Jersey, August 24th; Northern Illinois (*Dr. Nason*).

10.—*Tachysphex semirufus* Cress.

Larrada semirufa Cr., Proc. Ent. Soc. Phila., IV, p. 464. ♀.

Larra semirufa Patt., l. c. p. 389.

♀.—Anterior margin of the clypeus slightly rounded-out, armed with two distinct teeth on each extreme side; front rather coarsely granulated; vertex with fine distinct punctures; space between the eyes at top about equal to the length of antennal joints 2 and 3 united, perhaps a little greater; first joint of the flagellum scarcely one-fourth shorter than the second; dorsulum with fine, close, distinct punctures; scutellum a little more strongly punctured; metathorax above distinctly granulated, indistinctly striated on the sides, the posterior face a little more distinctly striated; legs strongly spinose; abdomen above impunctate, the last ventral segment strongly punctured; pygidial area tolerably well defined, sparsely punctured, its length nearly two and a-half times longer than it is wide at the base. Black;

scape beneath at apex, mandibles in the middle, and the tarsi except basal joint, obscure reddish; abdomen bright red; face, front, clypeus and thorax sparsely clothed with silvery pubescence; abdomen without silvery pile; wings slightly fuscous, iridescent, nervures black; marginal cell obliquely truncate; space between the second and third submarginal cells at the top about equal. Length 8-9 mm.

Colorado.

11.—*Tachysphex asperatus* n. sp.

♀.—Anterior margin of the clypeus a little rounded-out, not dentate laterally; front coarsely granulated; vertex with strong punctures; space between the eyes at top greater than the length of antennal joints 2 and 3 united and less than the length of joints 3 and 4 united; first joint of flagellum but little, if anything, shorter than the second; dorsulum coarsely punctured; metathorax above strongly rugose or rugoso-reticulate, the sides and behind distinctly striated; legs feebly spinose; abdomen above impunctate, the last ventral segment more or less punctured; last dorsal segment with the pygidial area only developed at apex, and then only to a very slight degree, impunctate. Black; mandibles at apex and the tarsi more or less, obscure red; abdomen bright red; face, front, clypeus and thorax, sparsely clothed with silvery pubescence; the abdomen with a sparse silvery pile; wings subhyaline, iridescent, nervures testaceous; marginal cell obliquely truncate; the second submarginal cell at the top greater than the third at the same place. Length 8 mm.

Nevada. The coarser sculpture of the dorsulum and the poorly developed pygidial area will distinguish this species from *semirufus*, which it greatly resembles.

12.—*Tachysphex antennatus* n. sp.

♀.—Anterior margin of the clypeus truncate, armed with a tooth laterally; front finely granulated; vertex finely and closely punctured; space between the eyes at top about equal to the length of antennal joints 2 and 3 united, possibly a little greater; first joint of the flagellum is long, nearly one-fourth shorter than the second, the flagellum not setaceous; dorsulum finely and closely punctured; scutellum likewise; metathorax above finely granulated, the sides indistinctly striated, the posterior face more distinctly so; legs tolerably well armed with spines; pygidial area scarcely two-

and-a-half times longer than it is broad at the base, sparsely punctured. Black; scape beneath at apex, mandibles in the middle and apical joints of the tarsi obscure reddish; abdomen bright red, somewhat blackish towards apex; front, face, clypeus and thorax sparsely clothed with silvery pubescence; the abdomen with sparse silvery pile; wings subhyaline, iridescent, nervures black; marginal cell obliquely truncate; third submarginal cell at the top a little greater than the second at the same place. Length 7 mm.

Texas.

13.—*Tachysphex æqualis* n. sp.

♂.—Front very finely granulated; vertex with close and fine punctures; space between the eyes at top about equal to the length of antennal joints 2 and 3 united; anterior margin of the clypeus subtruncate, armed with a tooth laterally; antennæ not thickened medially, the first joint of the flagellum about one-third shorter than the second; dorsulum very finely and closely punctured; the scutellum likewise; metathorax above coriaceous or finely granulated, the sides not or very indistinctly striated, the posterior face coarsely striated; legs feebly spinose, the emargination of fore femora broad. Black; scape beneath at apex, mandibles medially and the tarsi obscure reddish; first two segments of abdomen except base of the first, red; face and clypeus with dense silvery pubescence, that on the front golden; the thorax also tolerably well clothed with silvery pubescence; abdomen dorsally with silvery pile; wings subhyaline, iridescent, nervures testaceous; marginal cell obtuse at apex; second and third submarginal cells at the top about equal. Length 7–8 mm.

State of Washington.

14.—*Tachysphex sculptilis* n. sp.

♀.—Anterior margin of the clypeus subtruncate; front coarsely granulated; vertex with fine, distinct punctures; space between eyes at top greater than length of antennal joints 2 and 3 united, but less than joints 3 and 4 united; antennæ long, the flagellum scarcely setaceous, the first joint of the latter but little shorter than the second; dorsulum with fine, distinct punctures; metathorax above with coarse, longitudinal striations, the sides and posterior face also coarsely striated; legs feebly spinose; abdomen impunctate, except last ventral segment; pygidial area well defined, sparsely punctured and

about twice as long as it is broad at the base. Black; scape beneath at apex, mandibles medially and apical joints of tarsi, obscure reddish; abdomen bright red, with a sparse silvery pile; front, face and clypeus densely and the thorax sparsely, with silvery pubescence; wings subhyaline, nervures testaceous; marginal cell truncate, second submarginal cell at the top wider than the third at the same place. Length 7 mm.

Colorado. The sculpture of metathorax will readily distinguish this species.

15.—*Tachysphex parvulus* Cress.

Larrada parvula Cr., Proc. Ent. Soc., Phila., IV, p. 465. ♂

Larra montana Patton, l. c. p. 389; Kohl, l. c. p. 246.

♂.—Front finely granulated; vertex with exceedingly fine and close punctures; space between the eyes at top decidedly greater than the length of antennal joints 2 and 3 united, about equal to joints 3 and 4 united; anterior margin of clypeus subtruncate, armed with a tooth laterally; antennæ rather long, the flagellum not thickened medially, the first joint of the latter scarcely one-third shorter than the second; dorsulum very finely and closely punctured; scutellum likewise; metathorax above coriaceous or finely granulated, the sculpture of sides indistinct, though evidently finely striated, the posterior face transversely striated; legs feebly spinose, the emargination of fore femora large. Black; scape and mandibles colored as usual, the tarsi except first joint, reddish; abdomen bright red, with silvery pile; front, face and clypeus with a tolerably dense silvery pubescence, the thorax sparsely so; wings subhyaline, iridescent, nervures testaceous; marginal cell obliquely truncate; width of second and third submarginal cells at the top variable. Length 7 mm.

Colorado. This species is not the ♂ of *montanus* as has been supposed by some authors.

16.—*Tachysphex fumipennis* n. sp.

♀.—Anterior margin of the clypeus slightly produced medially, not dentate laterally; front coarsely and distinctly punctured, vertex with strong punctures; the furrow which extends back on the occiput deep, giving the latter an emarginate appearance; space between the eyes at the top much greater than the length of antennal joints 2 and 3 united, about equal to the length of joints 3 and 4; first joint of the flagellum but little shorter than the second; dorsulum

with strong, separated punctures; scutellum likewise, not impressed, upper surface of metathorax very strongly reticulated, the sides coarsely striated; legs tolerably well spined; pygidium very sparsely punctured, a little more than twice longer than it is broad at the base. Black; last abdominal segment red; front, face, clypeus and thorax more or less, with silvery pubescence; abdomen with a dense silvery pile; wings fuscous, base broadly hyaline, nervures black; marginal cell obliquely truncate; second submarginal cell at the top much greater than the third at the same place. Length 10–11 mm.

Florida, in the vicinity of St. Augustine (*C. W. Johnson*). The dark wings and sculpture of metathorax will distinguish this species from its allies.

17.—*Tachysphex fusus* n. sp.

♀.—Anterior margin of the clypeus slightly produced medially, not dentate laterally; front with the punctures coarser and closer than in the species just preceding; vertex strongly punctured; occiput when viewed from behind emarginate at the top; space between eyes at top much greater than the length of antennal joints 2 and 3 united about equal to joints 3 and 4 united; first joint of flagellum but little shorter than the second; dorsulum with strong separated punctures; scutellum distinctly impressed; metathorax above strongly granulated, the sides finely, though distinctly striated; legs tolerably well spined; pygidium sparsely punctured, about two and a half times longer than it is broad at the base. Black; scape beneath at apex and the mandibles in the middle reddish; tarsi reddish-testaceous; last two abdominal segments bright red; front, face and clypeus densely clothed with silvery pubescence, the thorax sparsely clothed; abdomen with a rather dense silvery pile; wings subhyaline, iridescent, nervures black; marginal cell obliquely truncate; width of the second submarginal cell at the top usually greater than the third at the same place. Length 9–10 mm.

♂.—Front with coarse, confluent punctures; vertex strongly punctured; space between eyes at top, if anything, greater than the length of antennal joints 2–4 united; anterior margin of the clypeus with the lateral angles sharp and with the medial portion very slightly produced; antennæ rather long, the flagellum a little thickened medially, the first joint of the latter about one-third shorter than the second; dorsulum with strong, separated punctures; scutel-

lum impressed; upper surface of metathorax transversely rugoso-granulated, the sides rather strongly striated; abdomen if punctured ventrally, it is very finely so. Colored and ornamented like the ♀. Length 7–8 mm.

Texas; Las Cruces, N. Mexico (*T. D. A. Cockerell*); Nevada; Montana. The pale wings and sculpture of metathorax will separate this species from the preceding one, while the shape of fore margin of clypeus will distinguish it from *terminatus*, which it most resembles. The ♂ differs from that of *terminatus* by the coarsely sculptured front.

18.—*Tachysphex terminatus* Smith.

Larrada terminata Sm., l. c. p. 291.

Larra terminata Patton, l. c. p. 389.

Larra minor Prov., Add. Hym. Quebec, p. 268. ♀ ♂

♀.—Anterior margin of the clypeus subtruncate, not produced in the middle; front finely granulated; vertex strongly punctured; occiput when viewed from behind not, or very slightly, emarginate above; space between the eyes at top about equal to the length of antennal joints 3 and 4 united, if anything slightly less; first joint of the flagellum nearly one-third shorter than the second; dorsulum with tolerably strong and separated punctures, which become close anteriorly; scutellum very slightly impressed; upper surface of the metathorax granulated, the sides distinctly, though not strongly striated; legs not very strongly spined; pygidial area sparsely punctured, about two and a half times longer than it is broad at the base. Black; mandibles in middle and scape beneath at apex reddish; tarsi apically reddish-testaceous; last two segments of abdomen bright red; wings subhyaline, iridescent, nervures testaceous; marginal cell obliquely subtruncate; second submarginal cell at the top wider than the third. Length 9–10 mm.

♂.—This sex resembles very closely the ♂ of *fuscus* but differs as follows: Space between the eyes at top distinctly greater than the length of antennal joints 2–4 united; front a little more closely and finely punctured; anterior margin of clypeus slightly rounded out, not produced medially, the lateral angles sharp, almost dentiform; dorsulum with the punctures sparser; wings more iridescent; legs less strongly spinose. Length 6 mm.

Canada to District of Columbia; N. Illinois (*Nason*); Vancouver. A ♀ from Nevada which I take to be a variety of this species has

the metathorax above with coarser sculpture and the three apical segments red. *Larra minor* Prov., of which I possess a ♂ received from J. A. Guignard, is, as far as the ♂ is concerned, identical with *terminatus*.

19.—*Tachysphex apicalis* Fox.

T. apicalis Fox, Journ. N. Y. Entom. Soc. I, p. 53. ♀ ♂

♀.—Anterior margin of the clypeus rounded out, very slightly emarginate medially, not dentate laterally; front with rather strong, separated punctures; vertex with the punctures deeper; occiput when viewed from behind slightly emarginate above; space between the eyes at top about equal to the length of antennal joints 3 and 4 united; first joint of the flagellum but little shorter than the second; dorsulum with strong, separated punctures, much sparser than those on the front; upper surface of metathorax coarsely reticulated or rugoso-reticulate, the metapleuræ coarsely striated, the posterior face roughened and with the transverse ridge at the top very prominent and sinuous; tibiæ and tarsi tolerably well armed with spines; pygidial area sparsely punctured, scarcely twice as long as it is broad at the base. Black; mandibles in the middle reddish; apical abdominal segment bright red; wings slightly fuscous, iridescent, the basal third subhyaline; marginal cell obtuse at apex; second submarginal cell at the top slightly wider than the third at the same place; head and thorax with sparse silvery pubescence that on the vertex fuscous; abdomen with sparse silvery pile. Length about $9\frac{1}{2}$ mm.

♂.—Front coarsely and rather closely punctured; occiput distinctly emarginate when viewed from behind; space between the eyes at top distinctly greater than the length of antennal joints 2–4 united; anterior margin of the clypeus a little produced medially; antennæ much shorter than in *fuscus* and *terminatus*, the first joint of flagellum not one-third shorter than the second; dorsulum with strong, separated punctures; scutellum slightly impressed; upper surface of metathorax as in the ♀, the sides not so coarsely striated; abdomen rather distinctly punctured ventrally; the silver pubescence of head and thorax more dense than in the ♀. Length 8 mm.

Southern Florida. (*Mrs. A. T. Slosson.*)

20.—*Tachysphex acuta* Patton.

Larra acuta Patt., l. c. p. 390.

♀.—Anterior margin of the clypeus rounded out, armed laterally with an indistinct tooth or else entire; front very finely granulated;

vertex with distinct punctures; occiput when viewed from behind very slightly emarginate; space between the eyes at the top distinctly less than the length of antennal joints 3 and 4 united, but still a little greater than the length of joints 2 and 3 united; first joint of the flagellum about one-third shorter than the second; dorsulum with strong, tolerably well separated punctures, the latter are however closer than in *apicalis*; upper surface of metathorax finely reticulated or reticulato-granulated, the metapleuræ rather strongly striated; tibiæ and tarsi tolerably well armed with spines; pygidial area sparsely punctured, nearly three times as long as it is broad at base. Black; mandibles medially and scape beneath at apex, obscure reddish; apex of abdomen *not* red; wings subfuscous, iridescent, nervures black; marginal cell subtruncate; width of the second and third submarginal cells at the top variable, although the second is usually greatest; face, front and clypeus with silvery pubescence, that on the thorax sparser; abdomen with silvery pile. Length 9 mm.

♂.—Front even more finely punctured than in the ♀; occiput not or very indistinctly emarginate; space between the eyes at top about equal to the length of antennal joints 2-4 united, at any rate not greater; anterior margin of clypeus a little more strongly rounded out than in the ♀; antennæ tolerably long, not thickened, the first joint of the flagellum about one-third shorter than the second; scutellum not impressed; upper surface of metathorax rather coarsely granulated, the metapleuræ finely striated; abdomen closely and finely punctured ventrally; pubescence about as in the ♀; wings paler, the marginal cell more obtuse and narrower at apex. Length $6\frac{1}{2}$ mm.

Connecticut in August (*Patton*); Georgia; Florida (*Mrs. A. T. Slosson*), Cedar Keys, June (*Coll. A. E. S.*).

21.—*Tachysphex amplius* n. sp.

♀.—Anterior margin of clypeus rounded out, armed with a tooth laterally; front rather strongly and closely punctured becoming granulated towards insertion of antennæ; vertex with distinct, tolerably close punctures; occiput not at all emarginate, in consequence of the impressed line not being strong; space between the eyes at top about equal to the length of the third joint of antennæ; first joint of the flagellum but little shorter than the second; dorsulum with tol-

erably fine and close punctures; scutellum slightly impressed; metathorax above strongly granulated, the metapleuræ rather coarsely striated as is likewise the posterior face; tibiae and tarsi well armed with spines; pygidial area feebly and sparsely punctured, but little, if anything longer than twice its width at the base. Black; mandibles medially, scape beneath at apex and tarsi, except first joint, reddish; abdomen bright red, without silvery pile; wings subhyaline, scarcely iridescent, nervures black; marginal cell obliquely truncate; width of the second submarginal cell at the top decidedly greater than the width of the third at the same place; head and thorax very sparsely clothed with silvery pubescence. Length 14 mm.

♂.—Front coarsely granulated, on upper portion becoming punctured; vertex with distinct, rather sparse punctures, those on the clypeus very fine and close; space between the eyes at top greater than the length of antennal joints 2 and 3 united, but decidedly shorter than 3 and 4 united; antennæ similar to the ♀, the first joint of the flagellum a little more than one-quarter shorter than the second, the second, third and fourth joints about equal; anterior margin of clypeus subtruncate; dorsulum with distinct, tolerably close punctures; metathorax above granulated, on the sides and behind striated; legs feebly spinose; colored like the female. Length 10 mm.

Nevada; New Mexico. This is one of our largest species.

22.—*Tachysphex montanus* Cress.

Larrada montana Cr., Proc. Ent. Soc. Phila. IV, p. 465. ♀.

Larra montana Patt., l. c. p. 389.

♀.—Anterior margin of clypeus subtruncate, with a large tooth laterally; front with rather fine and close, though distinct punctures; vertex very finely and closely punctured; space between the eyes at top less than the length of antennal joints 3 and 4 united, but greater than the length of joints 2 and 3 united; first joint of the flagellum about one-quarter shorter than the second; dorsulum with very fine and close punctures; scutellum slightly impressed; metathorax above finely coriaceous, the metapleuræ likewise, posterior face indistinctly striated; legs strongly spinose; abdomen stout, more or less compressed, especially apically; pygidial area sparsely punctured, its length a little more than twice greater than it is wide at base. Black; mandibles medially, scape beneath at apex and tarsi, except

first two joints, obscure reddish; abdominal segments 1-3 bright red; wings subhyaline, iridescent, nervures testaceous; marginal cell subtruncate; width of the second and third submarginal cells at the top about equal; head in front and the thorax sparsely clothed with silvery pubescence; abdomen without silvery pile. Length 11-12 mm.

♂.—Front and vertex a little more strongly punctured than in the ♀; anterior margin of clypeus subtruncate, not dentate laterally; space between eyes at top greater than the length of antennal joints 2 and 3 united, but less than the length of joints 3 and 4 united; antennæ long, setaceous; first joint of flagellum about one-quarter shorter than the second; dorsulum with very fine and close punctures; metathorax above and on the sides finely coriaceous; legs tolerably well armed with spines; colored like the ♀, but the wings darker. Length 9-11 mm.

Colorado.

23.—*Tachysphex decorus* n. sp.

♀.—Anterior margin of clypeus subtruncate, dentate laterally; front finely granulated; vertex finely and closely punctured; space between the eyes at top about equal to the length of antennal joints 2 and 3 united; first joint of the flagellum but little shorter than the second; dorsulum very finely and closely punctured; scutellum not impressed; upper surface of metathorax with tolerably strong longitudinal, sinuous striations or folds, the metapleuræ very indistinctly striated, the posterior face more distinctly so; legs rather strongly spinose; pygidial area impunctate, very narrow on apical portion, its length about two-and-a-half times longer than it is wide at the base. Black; mandibles medially, scape beneath at apex and tarsi, except basally, reddish; abdomen without silvery pile, the first three segments bright red; wings subhyaline, iridescent, nervures testaceous; marginal cell broadly and obliquely truncate; second submarginal cell at the top greater than the third at the same place; face and clypeus with sparse silvery pubescence; thorax with a sparse silvery pile. Length 9 mm.

Dakota. Based on a specimen labelled *Larrada dakota* Cress., which is evidently only a manuscript name.

24.—*Tachysphex inusitatus* n. sp.

♂.—Front finely and closely punctured, widely channelled down

the middle, on each side of which it is protuberant; anterior margin of the clypeus subtruncate, not dentate laterally; occiput is remarkably depressed, which causes the cheeks to bulge somewhat at the top; space between eyes at the top about equal to the length of antennal joints 3 and 4 united; antennæ tolerably long, strongly setaceous, the first joint of the flagellum scarcely one-quarter shorter than the second; dorsulum with fine and close punctures; scutellum, slightly impressed; metathorax above finely coriaceous, the metapleuræ indistinctly striated, the posterior face more distinctly striated. Black; mandibles medially, scape beneath at apex and tarsi more or less, reddish; abdomen without silvery pile, the first three segments bright red; wings dark subhyaline, iridescent, nervures testaceous; marginal cell obliquely subtruncate; width of second and third submarginal cells at the top about equal; front, face and clypeus with a tolerably dense, silvery pubescence. Length $9\frac{1}{2}$ mm.

Colorado. The peculiar form of the head will at once distinguish this species.

25.—*Tachysphex tenuipunctus* n. sp.

♀.—Anterior margin of the clypeus subtruncate, dentate laterally; front finely granulated; vertex finely and closely punctured; space between the eyes at top about equal to the length of antennal joints 2 and 3 united; first joint of the flagellum scarcely one-quarter shorter than the second; dorsulum very finely and closely punctured; scutellum slightly though distinctly impressed; metathorax above granulated, the metapleuræ finely coriaceous, the posterior face faintly striated; pygidial area with tolerably strong, sparse punctures, not narrowed more than usual apically, and is about two-and-a-half times longer than it is wide at the base. Black; mandibles medially, scape beneath at apex and the tarsi more or less (the latter palest), reddish; abdomen without silvery pile, the first three segments, sometimes only half of the third, bright red; wings subhyaline, iridescent, nervures testaceous; marginal cell obliquely subtruncate; width of the second and third submarginal cells at the top about equal, if otherwise the second is usually widest; front, face and clypeus with sparse silvery pubescence; thorax nude. Length 9–11 mm.

Mt. Hood, Oregon; Brit. Columbia; Montana; Custer, South Dakota (*Aldrich*); Canada (?). Greatly resembles *decorus*, but

differs in the sculpture of metathorax and the form of pygidium. Two specimens from Colorado, I refer with some doubt to this species; they measure 14 mm.

26.—*Tachysphex exsectus* n. sp.

♀.—Anterior margin of the clypeus in the middle distinctly emarginate and armed laterally with at least two strong teeth; front very finely and closely punctured; (it is difficult to determine in some species whether the front is punctured or granulated); vertex even more finely punctured; space between the eyes at top about equal to the length of antennal joints 2 and 3 united; first joint of the flagellum fully one-third shorter than the second; dorsulum very finely and closely punctured; scutellum not impressed; upper surface of metathorax finely granulated, metapleuræ finely coriaceous, the posterior face striated; legs rather strongly spinose; pygidial area strongly and sparsely punctured, its length fully two-and-a-half times greater than it is wide at the base. Black; mandibles medially, scape beneath at apex and the tarsi reddish (the tibiæ are sometimes indistinctly reddish); abdomen with a sparse silvery pile, the first three segments red; wings pale subhyaline, iridescent, nervures testaceous; marginal cell obliquely subtruncate; width of the second and third submarginal cells at the top about equal; front, face, clypeus and thorax with a silvery pubescence densest and brightest on the first mentioned parts. Length 9 mm.

♂.—Space between eyes at top greater than the length of antennal joints 2 and 3 united, but less than that of joints 3 and 4 united; anterior margin of clypeus subtruncate, not emarginate or dentate; upper surface of metathorax striated at the base; colored like the ♀; marginal cell obliquely truncated. Length 7 mm.

Montana; Mt. Hood, Oregon. I am in some doubt whether what I have described as the ♂, really belongs to this species; although agreeing more closely with this, yet their locality would seem to indicate relationship to *tenuipunctus*, to which species I had at first referred it.

27.—*Tachysphex consimilis* n. sp.

♀.—Anterior margin of clypeus subtruncate, not emarginate and not dentate laterally; front finely granulated; vertex finely and closely punctured; space between eyes at top greater than the length of antennal joints 2 and 3 united, but a little less than the combined

length of joints 3 and 4; first joint of flagellum scarcely one-quarter shorter than the second; dorsulum very finely and closely punctured; metathorax above granulated, metapleuræ very finely striated; pygidial area strongly and sparsely punctured, a little more than twice longer than it is wide at the base. Black; mandibles medially, scape beneath at apex and the tarsi, except first joint, reddish; abdomen without silvery pile, the first three segments red; wings pale subhyaline, iridescent, nervures testaceous; marginal cell obliquely subtruncate; second and third submarginal cells at the top about equal, if otherwise, the third is widest; front, face and clypeus with sparse silvery pubescence; thorax on sides and beneath, with a silvery pile. Length 7 mm.

♂.—Front very finely granulated; space between the eyes at top equal to or a little greater than the length of antennal joints 3 and 4 united; antennæ tolerably long and stout, the first joint of flagellum about one-third shorter than the second; the metathorax is more coarsely sculptured than in the female, the upper surface being strongly granulated and the base striated; colored like the female; pubescence on face denser; thorax with distinct silvery pubescence; abdomen with silvery pile. Length 7–8 mm.

Montana. Greatly resembles *exsectus*, but the eyes are more widely separated at the top, etc.

28.—*Tachysphex quebecensis* Prov.

Larra quebecensis Prov., Faun., Ent. Can. II, 633. ♀ ♂.

♀.—Anterior margin of clypeus subtruncate, dentate laterally, sometimes indistinctly so; front finely granulated; vertex finely and closely punctured; space between the eyes at the top about equal to length of antennal joints 2 and 3 united; first joint of the flagellum but little shorter than the second; dorsulum very finely and closely punctured; scutellum distinctly impressed; metathorax above coarsely wrinkled, the metapleuræ coarsely striated, the posterior face not so strongly striated; pygidial area strongly and sparsely punctured, nearly two and a half times longer than it is broad at the base. Black; mandibles in the middle, scape beneath at apex and the tarsi apically, reddish; abdomen more or less with silvery pile, the first two segments bright red; wings dark subhyaline, iridescent, nervures blackish; marginal cell obliquely truncate; width of the second and third submarginal cells at the top variable; head in front and thorax with a sparse, silvery pubescence. Length 10–11 mm.

♂.—Front finely granulated; space between eyes at top greater than the length of antennal joints 2 and 3 united, but a little less than that of joints 3 and 4 united; antennæ rather long and slender, the first joint of flagellum about one-third shorter than the second; anterior margin of clypeus slightly emarginate; metathorax more strongly sculptured above than in the ♀, but the striations of metapleuræ are not so strong; colored like the ♀, with the pubescence of head and thorax more profuse. Length 9 mm.

Canada (*J. A. Guignard*); Maine; Massachusetts. Resembles very much *tenuipunctus*, but the sculpture of metathorax will at once distinguish it from that species.

29.—*Tachysphex compactus* n. sp.

♂.—Anterior margin of clypeus subtruncate, not dentate laterally; front with fine and close punctures, appearing somewhat granulated; vertex very finely and closely punctured; space between the eyes at top about equal to the length of antennal joints 3 and 4 united; antennæ tolerably long and slender, the first joint of the flagellum scarcely one-third shorter than the second; dorsulum very finely and closely punctured; scutellum impressed; metathorax above coriaceous, the metapleuræ and posterior face finely and rather indistinctly striated; legs strongly spinose. Black; mandibles medially, scape beneath at apex and the tarsi, except basal joints, reddish; abdomen with a sparse, sericeous pile, the first three segments red; wings subhyaline, not strongly iridescent, nervures testaceous; marginal cell obliquely subtruncate; second submarginal cell a little broader at the top than the third; front, face and clypeus with silvery pubescence, the thorax sparsely so. Length 9 mm.

Vancouver; Colorado. May be the ♂ of *tenuipunctus*, but I scarcely believe it possible. Its robust form will at once distinguish it.

30.—*Tachysphex triquetrus* n. sp.

♀.—Anterior margin of clypeus indistinctly emarginate medially, armed with a large tooth laterally; front very finely and closely punctured, the vertex even more finely so; space between eyes at top about equal to the length of antennal joints 2 and 3 united; first joint of flagellum but very little shorter than the second; dorsulum punctured like the front, perhaps more finely so; scutellum im-

pressed; metathorax entirely coriaceous; legs strongly spinose, more so than in any of the other species, except *aethiops*; pygidial area strongly and sparsely punctured, scarcely twice as long as its width at the base, forming an almost perfect triangle. Black; mandibles medially, scape beneath at apex and the tarsi, except first joint, reddish; abdomen bright red, with exception of a few blotches dorsally and with a sparse silvery pile; wings subhyaline, not iridescent, nervures dark testaceous; marginal cell obliquely subtruncate; head and thorax absolutely without silvery pubescence. Length 14 mm.

Nevada. A very distinct species.

31.—*Tachysphex aethiops* Cress.

Larrada aethiops Cr., Proc. Ent. Soc. Phila., IV, p. 465. ♀.

Larra aethiops Patton, l. c. p. 389.

♀.—Anterior margin of clypeus subtruncate, either entire, or slightly emarginate medially and with a large tooth laterally, front very finely and closely punctured, the vertex even more so; space between eyes at top somewhat greater than the length of antennal joints 2 and 3 united, but much less than that of joints 3 and 4 united; first joint of flagellum distinctly shorter than the second; punctures of dorsulum, though finer, are more distinct than those of the front; scutellum not impressed; metathorax entirely coriaceous; legs strongly spinose; pygidial area strongly and sparsely punctured, about two-and-a-half times longer than it is wide at the base. Entirely black, except mandibles medially, scape beneath at apex and the apical joints of the tarsi, which are reddish; abdomen without silvery pile and the head and thorax destitute of silvery pubescence; wings dark fuscous, iridescent, the posteriors pale at base, nervures black; marginal cell obliquely subtruncate. Length 12–15 mm.

♂.—Anterior margin of clypeus truncate, not emarginate, the lateral angles not dentate, but strongly produced; front very finely granulated; space between eyes at top about equal to length of antennal joints 3 and 4 united; antennæ long and slender, first joint of flagellum about one-third shorter than the second; scutellum slightly impressed; metathorax coriaceous, above with a distinct, medial impressed line; colored like the female; face, front and clypeus with silvery pubescence; marginal cell obtuse at tip. Length 9–10 mm.

Colorado; Nevada; State of Washington. Its entirely deep black color and dark wings will distinguish this species from any of its allies.

32.—*Tachysphex nigrior* n. sp.

♀.—Anterior margin of clypeus subtruncate, entire, not or indistinctly dentate laterally; front very finely granulated; vertex very finely and closely punctured; space between the eyes at top greater than the length of antennal joints 2 and 3 united, but a little less than that of joints 3 and 4; antennæ long and slender, first joint of flagellum nearly one-third shorter than the second; dorsulum with fine, tolerably close punctures, but neither as fine nor as close as those on the vertex; scutellum not impressed; metathorax above rather delicately reticulated, the metapleuræ and posterior face distinctly, but not strongly, striated; legs, in comparison to *triquetrus* and *æthiops*, feebly spinose; pygidial area strongly and sparsely punctured, its length about two-and-a-half times greater than it is wide at base. Entirely black, except mandibles medially, scape beneath at apex and last three joints of tarsi, which are reddish; wings subhyaline, iridescent, nervures blackish; marginal cell obliquely subtruncate; second submarginal cell at the top usually somewhat wider than the second; face and clypeus with sparse, silvery pubescence; thorax nude; abdomen sparsely pilose. Length 7–9 mm.

♂.—Anterior margin of clypeus as in the ♀; front likewise; space between the eyes at top about equal to the combined length of antennal joints 2, 3 and 4; antennæ not very long, rather stout, the flagellum thickened somewhat medially, with the first joint not much shorter than the second; scutellum slightly impressed; metathorax sculptured as in the ♀, but more strongly; colored like the opposite sex. Length 6–8 mm.

State of Washington. One specimen, a female, has the basal segments of abdomen obscurely reddish, which would indicate that there may be examples with the abdomen red and black.

33.—*Tachysphex pauxillus* n. sp.

♀.—Anterior margin of the clypeus subtruncate, armed with a distinct tooth laterally; front very finely granulated; vertex very finely and closely punctured; space between the eyes at top greater, but not much, than the length of antennal joints 2 and 3 united, much less than that of joints 3 and 4 united; antennæ long and slender, the first joint of flagellum nearly one-third shorter than the second; dorsulum with very fine, tolerably close punctures, the latter are as fine

as those of the vertex; metathorax above granulated, the metapleuræ and posterior face distinctly, though not strongly, striated; legs feebly spinose; pygidium strongly and sparsely punctured, its length but little greater than twice its width at the base. Black; mandibles medially, scape beneath at apex and the most of tarsi, reddish; abdomen not pilose, and, excepting the last two segments bright red; wings subhyaline, nervures testaceous; marginal cell obliquely truncate; face and clypeus with sparse silvery pubescence. Length 6 mm.

California.

34.—*Tachysphex punctifrons* Fox.

Larra punctifrons Fox, Ent. News. II, p. 194. ♀.

♀.—Anterior margin of clypeus with or without an emargination medially, armed with a tooth laterally; front finely and evenly punctured, appearing granulated; the vertex more finely punctured; space between eyes at top somewhat greater than the length of antennal joints 2 and 3 united, but much less than that of joints 3 and 4 united; dorsulum like the vertex; first joint of flagellum but little shorter than the second; scutellum slightly impressed; metathorax coriaceous, the posterior face indistinctly striated; legs strongly spinose; pygidial area sparsely and strongly punctured, its length fully two-and-a-half times, or more, longer than it is wide at base. Entirely black, clothed with a sericeous pile; wings subhyaline, not iridescent, nervures testaceous; marginal cell obliquely subtruncate; face and clypeus without silvery pubescence; apical half of tarsi reddish. Length 12–13 mm.

♂.—Anterior margin of clypeus not emarginate, nor dentate; sides of front and face depressed; space between eyes at top about equal to the length of antennal joints 3 and 4 united; first joint of flagellum not much shorter than the second; wings iridescent; head in front with rather dense silvery pubescence. Length 11–12 mm.

New Jersey, in September; Florida (*Mrs. A. T. Slosson*); Illinois; Colorado; Montana. The dense sericeous pile, with which this insect is clothed, and the large size, will at once distinguish it from the other species of this genus.

35.—*Tachysphex mundus* n. sp.

♀.—Anterior margin of clypeus not strongly, though distinctly

emarginate medially and armed laterally with two teeth; front with exceedingly fine and close punctures; vertex with the punctures more distinct; space between the eyes at top about equal to the length of antennal joints 2 and 3; first joint of flagellum about one-quarter shorter than the second; dorsulum somewhat more coarsely punctured than the front; scutellum not impressed; metathorax coriaceous or else finely granulated, the sides smooth, the posterior face striated; tegs tolerably spinose; longer spur of hind tibiæ in length greater than the first joint of the hind tarsi; pygidial area strongly and sparsely punctured, in length but little greater than twice longer than its width at the base. Black; mandibles medially and scape beneath at apex, reddish; tarsi, tegulæ and the apical margins of segments (more broadly than in the other species) testaceous; wings pale subhyaline, iridescent, nervures testaceous; marginal cell narrowly truncate; head in front and the thorax with dense silvery pubescence; abdomen with a dense silvery pile, which appears as four bands when viewed from behind. Length 8–9 mm.

♂.—Anterior margin of clypeus not emarginate or dentate; front rather coarsely granulated; vertex more distinctly punctured than in the ♀; space between the eyes at top greater than the length of antennal joints 2 and 3 united, but scarcely equal to that of joints 3 and 4; first joint of flagellum nearly one-third shorter than the second; dorsulum with the punctures separated; scutellum distinctly impressed; metathorax above strongly granulated, the sides coriaceous; colored like the ♀, except that the abdomen is entirely testaceous. Length 8 mm.

Illinois; Texas. This species is as densely pilose as *punctifrons*, but the pile is silvery, the sculpture different and the size much smaller.

36.—*Tachysphex minimus* Fox.

Tachytes minimus Fox, Tr. Amer. Ent. Soc. XIX, p. 248. ♂.

♂.—Anterior margin of the clypeus subtruncate, not dentate laterally; front with exceedingly fine and close punctures; space between the eyes at top about equal to the length of antennal joints 2 and 3 united; first joint of flagellum about one-quarter shorter than the second; dorsulum with the punctures even and distinct, much stronger than those of the front; scutellum not impressed; metathorax above granulated, the metapleuræ and posterior face finely, though distinctly, striated. Black; mandibles medially and scape

beneath at apex, reddish; apex of femora, and tibiæ and tarsi entirely, reddish-yellow; front, face, clypeus and thorax with silvery pubescence, that on the front and dorsulum approaching to golden; abdomen with silvery pile on apical portion of segments; wings subhyaline, iridescent, nervures testaceous; marginal cell subtruncate. Length $5\frac{1}{2}$ –7 mm.

Camden County, New Jersey in July; Georgia; Texas; Illinois. Resembles greatly *mundus*, but may be at once distinguished by color of legs.

LYRODA Say.

Lyroda Say, Journ. Nat. Hist. I, p. 370. 1836; Kohl, l. c. p. 266.

Mandibles distinctly notched on outer margin; antennæ elongate; eyes with the inner margin, almost straight, not converging towards the vertex, nearly parallel; front and vertex without protuberances, not raised along inner eye-margins; ocelli round and distinct, including the posteriors, and are placed in the form of a low triangle; top of prothorax rather angularly produced medially, on each side of the production roundly emarginate; (the top of prothorax reaches the level of the dorsulum); anterior wings with a distinctly truncated marginal cell which has an appendiculation, three submarginal cells, the second of which receives both recurrent nervures, the basal vein joins the externo-medial vein, stigma large; tibiæ and tarsi spinose, but not strongly so; *comb of fore-tarsi short and feeble*; middle tibiæ one-spurred; pulvilli large; last dorsal segment of ♀ with a large, pygidial area, which is covered with a short pubescence.

But few species of this genus have been described, two of which are found in Boreal America. They may be tabulated as follows:

Anterior margin of clypeus of ♀ armed with three distinct teeth laterally; wings clear, dusky at tip; form rather slender with silvery pile on abdomen; ♂ similar to ♀, but smaller, the clypeus with its fore margin strongly bilobate medially, not dentate laterally.

. *subita*.

Anterior margin of clypeus of ♀ not at all dentate laterally; wings dark fuscous; form stout, deep black, without silvery pile on abdomen; ♂ unknown *triloba*.

1.—*Lyroda subita* Say.

L. subita Say, Journ. Nat. Hist. I, p. 372.

♀.—Anterior margin of clypeus truncate medially, armed laterally with three distinct teeth; front and vertex with very fine and

close punctures; first joint of flagellum about one-third longer than the second; distance between hind ocelli somewhat greater than the space between them and the nearest eye-margin; dorsulum finely and closely punctured; metathorax above with a central, longitudinal raised line, from each side of which, extend in an irregular manner coarse folds or rugæ; posterior face coarsely rugose, the metapleuræ finely granulated; legs not very strongly spinose. Black, the tegulæ and tarsi somewhat testaceous; clypeus densely, and thorax more or less, with silvery pubescence; legs and abdomen with a silvery pile, which is most conspicuous on apical margin of segments 1-3; wings subhyaline, apex fuscous, nervures testaceous. Length 11-13 mm.

♂.—Resembles the ♀ but is smaller; anterior margin of clypeus in the middle strongly bilobate, not dentate laterally; antennæ shorter and stouter; legs feebly spinose; colored and ornated like the ♀; dorsulum with the punctures finer. Length 7-9 mm.

Canada to Florida, westward to Montana. *L. caliptera* Say is probably only a variety of this species.

2.—*Lyroda triloba* Say.

L. triloba Say. l. c. p. 372.

♀.—Anterior margin of clypeus subtruncate medially, not dentate laterally; front and vertex seemingly impunctate; first joint of flagellum a little more than one-third longer than the second; distance between the hind ocelli, if anything, a little less than the space between them and the nearest eye-margin; dorsulum indistinctly punctured; metathorax above finely rugoso-granulated, with a longitudinal medial raised line, the metapleuræ coarsely striated throughout. Deep black; tegulæ and tarsi somewhat testaceous; head and thorax, especially the face and clypeus, with brownish pile; abdomen also sparsely pilose, but the pile is not silvery or conspicuous; wings dark fuscous, iridescent. Length 14-15 mm.

Canada to Texas; Illinois; Indiana (Say). The large size and dark wings will at once distinguish this species from *subita*.

DIPLOPLECTRON Fox.

Diploplectron Fox, Tr. Amer. Ent. Soc. XX, p. 38, 1893.

Head broader than the thorax; *mandibles bidentate at apex*, the outer tooth by far the longest, *the outer margin is incurved medially, or very slightly emarginate*, in the ♀ the mandibles are shorter, broader

and the outer margin seems to be entire; eyes strongly converging towards the vertex, so that the distance between them at that point is about equal to half of that at the mandibles; *ocelli round, convex, and situated so as to form a rather high triangle*; antennæ situated very low down, the middle lobe of clypeus extending up between them, rather long, very slightly thickened medially (the thickening is more obvious in the ♂) and narrowed to apex, *alike in both sexes, i. e. those of the ♂ are not formed into a spiral as in Dinetus*; prothorax large and very prominent, not emarginate above, and the anterior portion is not cut off so suddenly as in most of the allied genera; when compared with the dorsulum it is fully two-thirds as long; *metathorax longer than the dorsulum, with no distinct enclosure*; anterior wings with an extremely short marginal cell, which is broadly truncate at apex, and has a long and distinct appendiculate cell; *there are three cubital or submarginal cells*, the first of which is longer than the two others combined, the second submarginal cell is triangular; the first and second recurrent nervures are received by the first and second submarginal cells respectively, as in *Dinetus*; anterior tarsi of ♀ with a comb formed of long, slender, widely separated spines; the ♂ has no tarsal comb; *middle tibiae of both sexes with two spurs*. Last dorsal segment of ♀ with an elongate triangular pygidium.

Diploplectron brunneipes Cress.

Liris (♀) *brunneipes* Cress., Proc. Ent. Sect. Acad. Nat. Sci., 1881, p. III, ♂ ♀.
Diploplectron brunneipes Fox, l. c. p. 38.

♀.—Middle lobe of clypeus convex, produced a little anteriorly, the lateral lobes depressed; front and vertex polished, seemingly impunctate; antennæ long, setaceous, flagellum with joints 1-4 about equal in length; vertex with a fovea on each side of ocelli; dorsulum and scutellum polished, impunctate; scutellum convex, not impressed; upper surface of metathorax granulated, the metapleuræ coarsely striated; legs tolerably spinose; pygidial area sparsely punctured, not prominent. Black; clypeus medially, mandibles except apex, antennæ, prothorax and four anterior legs, pale brown, the hind legs and abdomen castaneous; tegulæ and humeral tubercles, yellowish; wings subhyaline, nervures testaceous. Length 6 mm.

♂.—Similar to the ♀; first joint of flagellum a little longer than the second; clypeus and sides of face bright yellow; prothorax and

femora, except apex, black; legs feebly spinose. Length $5\frac{1}{2}$ mm.

Colorado; Nevada. Seems to be very rare.

PLENOCULUS Fox.

Plenoculus Fox, Psyche, Nov. 1893, p. 554.

Outer margin of mandibles strongly emarginate; in the ♂ the clypeus has on each side a fringe of hairs as in Cerceris; eyes within not emarginate, distinctly converging towards the vertex; ocelli round and prominent, all three distinct, placed in the form of a triangle; antennæ short and stout, originating immediately behind the clypeus, the flagellum more or less clavate; head transverse, wider than the thorax; pronotum not reaching the level of the dorsulum; metathorax shorter than the dorsulum; legs stout, the femora narrower at apex than at the base, tibiæ and tarsi strongly spinose, anterior tarsi with a tolerably well-developed comb; tibial spurs large, the hind tibiæ with two, the four anteriors with but one; tarsal claws rather long and slender, entire, smaller in the ♂; wings with an elongate marginal cell, which is truncate at apex and with a small though distinct appendiculation, three submarginals of which the first is nearly twice as long as the other two combined, the second petiolate, the third is oblique and slightly narrowed above, first recurrent nervure received by the first submarginal cell near its apex, the second by the second submarginal cell between its middle and apex, the discoidal and basal nervures meet at a short distance from the apex of the submedian cell, this cell being therefore shorter than the median cell on the externo-medial nervure, stigma small, scarcely distinguishable from the costal nervure; last dorsal segment of ♀ with a large and distinct pygidial area.

Three species of this genus are known at present, all of which occur in the United States.

Clypeus strongly emarginate medially and dentate laterally; first joint of flagellum, if anything, shorter than the second.

On each side of the clypeal emargination there are from three to five small teeth; mandibles, except apex, and hind tibiæ and tarsi (usually) more or less, yellowish; ♂ with the clypeus, tegulæ, tibiæ and tarsi, yellow; abdomen black. . . . *Davisii*.
On each side of the clypeal emargination, though widely separated from it, are two large and prominent teeth; mandibles reddish medially; hind tibiæ and tarsi not at all yellowish; ♂ unknown; abdomen black *propinquus*.

Clypeus distinctly rounded-out, not emarginate or dentate ;
 first joint of flagellum distinctly longer than the second ; abdomen
 entirely red ; ♂ unknown *Cockerellii*.

1.—*Plenoculus Davisii* Fox.
P. Davisii Fox, *ibid.* p. 554.

♀.—Anterior margin of clypeus deeply incised, armed with fine small teeth on each side, the outer and inner tooth is usually the largest, the others being sometimes indistinct; first joint of flagellum shorter than the second ; dorsulum and scutellum minutely punctured, the latter strongly convex ; upper surface of metathorax coriaceous or finely granulated, with a longitudinal, medial, impressed line, and at the extreme base with a transverse series of short striæ ; the metapleuræ delicately striated; legs tolerably spinose ; pygidial area strongly and sparsely punctured, triangular. Black; mandibles, except tips, tegulæ, tibiæ and tarsi more or less, yellowish ; abdomen with the segments broadly testaceous on apical margins, the last segment reddish at tip ; front, face, clypeus and thorax densely clothed with silvery pubescence ; abdomen with silvery pile ; wings hyaline, iridescent, nervures testaceous ; distance between the first recurrent nervure and the base of second submarginal cell on the cubital nervure not greater (usually less) than the length of the petiole of the second submarginal cell. Length 5–6 mm.

♂.—Anterior margin of clypeus very strongly rounded-out, or slightly produced medially ; antennæ more distinctly clavate than in the ♀, the first two joints of flagellum about equal in length; ventral abdominal segments 3-6 with a transverse row of tubercles or swellings; clypeus entirely, scape beneath, tegulæ, tubercles, apex of femora, the tibiæ, except inner side of two anterior pair, and the tarsi, bright yellow. Length $4\frac{1}{2}$ –5 mm.

Agricultural College, Michigan, in June and July (*G. C. Davis*);
 Montana (*Morrison*).

2.—*Plenoculus propinquus* n. sp.

♀.—Anterior margin of clypeus very strongly incised, armed on each extreme side with two very prominent teeth, the part between these teeth and the medial incision seemingly entire; first joint of flagellum about equal to the second in length, at any rate not longer ; dorsulum and scutellum finely punctured, more distinctly so

than in *Davisii*; scutellum strongly convex; upper surface of metathorax coriaceous or finely granulated, with a longitudinal, medial, impressed line, and at the extreme base with a transverse series of short striæ, the metapleuræ delicately striated; legs tolerably spinose; pygidial area strongly and sparsely punctured, shorter and broader than in *Davisii* (its length is about one-quarter greater than its width at the base). Black; anterior tibiæ in front yellowish; mandibles medially, tegulæ and tarsi reddish testaceous; segments of abdomen testaceous on apical margins; front, face, clypeus and thorax, more or less, clothed with silvery pubescence; abdomen with a sparse silvery pile; wings hyaline, iridescent, nervures testaceous; distance between the first recurrent nervure and the base of the second submarginal cell on the cubital vein greater than the length of the petiole of the second submarginal cell. Length 6–7 mm.

Colorado. Closely resembles *Davisii* but is distinct by the armature of clypeus, shape of pygidium and color of mandibles and legs.

3.—*Plenoculus Cockerellii* n. sp.

♀.—Anterior margin of clypeus rounded-out, not emarginate or dentate; first joint of flagellum distinctly longer than the second; dorsulum and scutellum minutely punctured, the latter strongly convex; metathorax coriaceous, or finely granulated, with a longitudinal, medial, impressed line above, and without the series of transverse striæ at base, metapleuræ shining; legs tolerably spinose, the tarsal comb rather strongly developed; pygidial area strongly and sparsely punctured, short and broad, its lateral margins better developed than in either of the two other species. Black; abdomen entirely red; mandibles, except apex, ferruginous; tegulæ, inner side of hind tibiæ and base of the anterior pair, yellowish; a large spot on the four anterior femora beneath near the apex, white; hind tibiæ on outer side and the tarsi, reddish-testaceous; wings hyaline, iridescent, nervures testaceous; distance between the first recurrent nervure and the base of the second submarginal cell on the cubital vein less than the length of the petiole of the second submarginal cell; the third transverso-cubital nervure on its lower portion bulges out towards the apex of wing. Length 6 mm.

Las Cruces, New Mexico (*T. D. A. Cockerell*). A very pretty and distinct species, which may easily be recognized by its coloration.

ASTATUS Latr.

Astatus Latr., Précis. des Car. gén. des Ins. p. 114. 1796.

Astata Latr., Hist. Nat. gen. et part. des Crust. et Ins., T. III, p. 336. 1805.

Astatus Kohl, Verh. zool.-bot. Gesell. Wien, XXXIV, p. 431. 1885.

Head about as broad as the thorax; mandibles without emargination on outer margin, on their inner side, not far from the apex, with a blunt tooth; eyes in the ♀ but little converging towards the vertex, *in the ♂ they touch each other at that place*; ocelli round and convex; antennæ originating close to the clypeus, the distance between their bases is about equal to that between them and the eye-margin; prothorax much smaller than the mesothorax, the pronotum drawn down deeply under the level of dorsulum; *shoulder tubercles reaching the tegulæ*; wings with a broadly, truncated marginal cell, the length of which varies in the different species, three submarginal and two discoidal cells; *the posterior wings are remarkable by their extraordinarily large and broad basal lobes*; legs thickly and strongly armed; *the middle tibiæ are two-spurred* and the ♀ with a comb on fore tarsi, composed of a few, moderately long thorns; claws entire, the pulvilli of medium-size; the last dorsal segment of both sexes with a pygidium, which in the ♀ is triangular and usually truncated at apex in the ♂, the latter sex has also in some species a tolerably long fringe of hairs.

This genus, remarkable through the eyes of the ♂ meeting on the vertex, is tolerably well represented in Boreal America. With the exception of a synoptical table our species have never been treated in a monographic way. Nothing is known of their habits, although it is likely, that they, like the European *A. boops*, store their nests with Hemipterous larvæ.

FEMALES.

- 1—Marginal cell as long or longer than the first submarginal (if shorter it is scarcely noticeable) 2
- Marginal cells always distinctly shorter than the first submarginal 7
- 2—Dorsulum strongly and closely punctured throughout 3
- Dorsulum, especially on posterior portion, sparsely punctured . 6
- 3—Entirely black 4
- Abdomen red 5
- 4—Produced portion of anterior margin of clypeus subtruncate; vertex coarsely punctured; first joint of flagellum one-third or more longer than the second *unicolor*.

- Produced portion of anterior margin of clypeus strongly bidentate vertex with a few, large, scattered punctures; first joint of flagellum less than one-third longer than the second *Sayi*.
- 5—Pygidial area long, narrow, its length a little more than twice greater than its width at base; wing-stigma black or dark-red. *bicolor*.
- Pygidial area of a more triangular form, its length not more than twice greater than its base is broad; wing-stigma yellowish. *pygidialis*.
- 6—Metanotum with a well-marked, triangular depression at apex; the length of the marginal cell fully equal to that of the first submarginal; entirely black, the pubescence of thorax white *occidentalis*.
- Metanotum without a well-marked depression at apex (if at all present it is very indistinct); length of marginal cell a little less than that of the first submarginal; abdomen black and red, or entirely black, the pubescence of thorax usually black, though sometimes white *nubeculus*.
- 7—Metanotum with coarse, irregular, radiating striations; antennæ and legs stout *nevadicus*.
- Metanotum finely sculptured 8
- 8—Metanotum finely granulated; tegulæ testaceous 9
- Metanotum very finely striated; tegulæ whitish. *elegans*.
- 9—Produced portion of anterior margin of clypeus narrow, elongate, truncate at apex; meso-and metapleuræ finely sculptured. *montanus*.
- Produced portion of anterior margin of clypeus armed with three large teeth; meso-and metapleuræ very coarsely sculptured *asper*.

MALES.

- 1—Marginal cell as long or longer than the first submarginal (if shorter it is scarcely noticeable) 2
- Marginal always distinctly shorter than the first submarginal 7
- 2—Entirely black 3
- More or less red 5
- 3—Pubescence of thorax black; fore-wings, except basal third, fuscous; metanotum strongly reticulated. *nubeculus* (= *nigripilosus*)
- Pubescence of thorax white 4
- 4—Wings hyaline throughout; first joint of flagellum fully one-third longer than the second; metanotum not depressed *unicolor*.
- Fore wings stained fuscous medially; first joint of flagellum about one-quarter longer than the second; metanotum more or less depressed before apex *occidentalis*.
- 5—Pubescence of thorax white; metanotum reticulated 6
- Pubescence of thorax black. *nubeculus*.

- 6—Upper surface of metathorax coarsely reticulated, with a central, longitudinal ridge; stigma of wings yellow; abdomen black apically *bicolor*.
 Upper surface of metathorax rather finely reticulated, without a central, longitudinal ridge; stigma of wings testaceous, abdomen not black apically *nevadensis*.
 7—More or less red; tegulæ whitish; wings subhyaline 8
 Ceruleous; wings fuliginous *cæruleus*.
 8—Metanotum very finely granulated or coriaceous 9
 Metanotum very finely and transversely striated *bellus*.
 9—Wings subhyaline throughout; mesopleuræ sparsely punctured. *elegans*.
 Wings with apical third dark fuscous; mesopleuræ more or less rugose. *asper*.

1.—*Astatus unicolor* Say.

Astata unicolor Say, Long's Exp. St. Peter's River p. 338 ♀. 1823.

Astatus unicolor Kohl, l. c. p. 449.

♀.—Produced portion of anterior margin of clypeus subtruncate; front with tolerably strong close punctures, the vertex with coarse punctures; the punctuation of the region enclosed by the ocelli is much closer than that on front; ocelli placed in pits, especially the anterior one; antennæ tolerably long, the first joint of flagellum one-third or more, longer than the second; dorsulum closely and coarsely punctured, medially the punctures are somewhat sparser; scutellum sparsely punctured medially, slightly impressed; metathorax above very coarsely reticulated, the metapleuræ somewhat less strongly so; tibiæ and tarsi strongly spinose; with exception of second ventral segment the abdomen is scarcely punctured; pygidial area about two-and-a-quarter times longer than it is broad at the base. Black; tarsi obscurely testaceous; head, thorax, legs and abdomen beneath, clothed with a long, whitish pubescence which is most dense on the head; wings with the apical third fuscous, the marginal cell broadly truncate. Length 11–12 mm.

♂.—Produced portion of anterior margin of clypeus subtruncate; front strongly convex, strongly impressed medially and much more closely punctured than in the ♀; joints 3–8 of flagellum rounded-out beneath, the first joint more than one-third longer than the second; dorsulum with the punctures somewhat closer and finer than in ♀; scutellum but slightly impressed; metapleuræ striated, on lower portion punctate; abdomen, ventrally, finely and on the second and third segments sparsely punctured; last dorsal segment coarsely

punctured; colored similar to the ♀, the pubescence denser. Length 9–12 mm.

Canada to Texas; Colorado; Illinois.

2.—*Astatus Sayi* n. sp.

♀.—Produced portion of anterior margin of clypeus strongly tridentate; front with tolerably strong, close punctures, the vertex with very sparse, strong punctures; ocelli placed in pits, especially the anterior one; antennæ tolerably long, the first joint of flagellum less than one-third longer than the second; dorsulum with tolerably strong and not very close punctures; scutellum sparsely punctured, very slightly impressed medially; metathorax above coarsely reticulated, the reticulum closer than in *unicolor*; the metapleuræ rugose; at the base of posterior face of metathorax, in the middle, is a triangular enclosed space, the lower half of which is smooth; tibiæ and tarsi strongly spinose; abdomen very sparsely punctured, including the second ventral segment; pygidial area less than twice longer than it is broad at the base. Black; mandibles medially, tegulæ and the tarsi obscurely, testaceous; head, thorax and legs tolerably clothed with pale pubescence; with exception of the first segment, the abdomen is nude; wings with the apical third fuscous, the marginal cell obliquely truncate. Length 14 mm.

Virginia. Resembles closely *unicolor*, but is easily distinguished by dentate clypeus, larger size, etc.

3.—*Astatus occidentalis* Cress.

Astata occidentalis Cr., Kohl, Proc. Ent. Sect. Acad. Nat. Sciences, Phila., 1881, p. III. ♂.

Astatus occidentalis Kohl, l. c. p. 448.

♀.—Produced portion of anterior margin of clypeus sinuous, slightly lobate medially; front with tolerably strong and close punctures, which are, however, not so close as in the preceding species; vertex with sparse, strong punctures; ocelli placed in pits, especially the anterior one; first joint of flagellum about one-quarter longer than the second; dorsulum anteriorly closely punctured, the remainder polished, almost impunctate; scutellum sculptured above like the posterior part of dorsulum, with an impressed line on apical half; metathorax above coarsely reticulated and with a triangular depression at the apex in the middle; metapleuræ coarsely striated; posterior face of metathorax with a pyriform depression, situated be-

tween base and middle; tibiæ and tarsi strongly spinose; abdomen very sparsely punctured, dorsal segments 2–5 with a transverse, sinuous row of punctures between middle and apex; pygidial area less than twice longer than it is broad at base. Black; mandibles medially, tegulæ and tarsi obscurely, reddish-testaceous; head, thorax above and first segment of abdomen with pale pubescence, that on legs and thorax beneath, black; wings fuscous, paler basally; marginal cell obliquely subtruncate. Length 11–14 mm.

♂.—Produced portion of anterior margin of clypeus widely and angularly emarginate; front strongly convex and deeply impressed medially; joints 5–8 of flagellum a little rounded-out beneath, the first joint rather strongly bent or curved and about one-quarter longer than the second; dorsulum finely punctured, very closely so anteriorly; scutellum sculptured like postertor portion of dorsulum, impressed medially; metathorax above rather finely rugoso-granulated, the metapleuræ and posterior face coarsely and closely punctured; abdomen beneath rather closely punctured; apical margins of wings broadly hyaline. Length 11–13 mm.

Nevada; Montana; Washington.

4.—*Astatus nubeculus* Cress.

Astata nubecula Cr., Proc. Ent. Soc. Phila. IV, p. 466. ♂.

Astata nigropilosa Cr., Proc. Ent. Section, Acad. Nat. Sciences, Phila., 1881, p. IV, ♀ (=var.).

Astatus nubeculus Kohl, l. c. p. 448.

♀.—Produced portion of anterior margin of clypeus subtruncate; front with tolerably strong and separated punctures; vertex with sparse, strong punctures; first joint of flagellum about one-quarter, or more, longer than the second; dorsulum anteriorly closely punctured, on the remainder polished, almost impunctate; scutellum similar to the posterior portion of dorsulum, impressed medially; metathorax above coarsely reticulated, the metapleuræ, except lower basal portion rugose; tibiæ and tarsi strongly spinose; abdomen scarcely punctured; pygidial area about twice as long as it is broad at base. Black; mandibles medially, tegulæ and tarsi, reddish-testaceous; abdominal segments; 1, 2 and 3 red; head, thorax and legs clothed with black pubescence; apical third of wings fuscous; marginal cell broadly truncate. Length 9 mm.

♂.—Produced portion of anterior margin of clypeus as in the ♀; first joint of flagellum nearly one-third longer than the second; dorsulum finely and evenly punctured throughout, the scutellum

sparsely so medially; metathorax above more finely reticulated than in the ♀; colored like the ♀; abdomen rather densely clothed, especially ventrally, with dark pubescence; wings hyaline, fuscous medially. Length 9-10.

Var. A. ♀ ♂.—Entirely black. Length 9-13.

Var. B. ♀ ♂.—Entirely black; pubescence white; mandibles of ♂ yellow medially.

Colorado (typical form); Montana; Nevada; Calif.; Washington (var. A. = *nigropilosa* Cr.); Montana (var. B.). Algonquin, Illinois (var. B.) taken by Dr. W. A. Nason.

5.—*Astatus bicolor* Say.

Astata bicolor Say, Long's Exp. St. Peter's River, p. 78. 1823.

Astata rufiventris Cr., Tr. Am. Ent. Soc. IV, p. 218 ♀.

Astata terminata Cr., ibid, p. 218, ♂.

Astatus bicolor Kohl, l. c. p. 447.

♀.—Produced portion of anterior margin of clypeus truncate; front with tolerably strong and close punctures; the vertex with the punctures stronger and sparser than those of the front; first joint of flagellum about or nearly one-third longer than the second; dorsulum strongly punctured, the punctures on posterior portion but little sparser than those of the anterior; scutellum sparsely punctured, impressed medially; metathorax above coarsely reticulated, the metapleuræ, except lower basal portion, rugose; tibiæ and tarsi strongly spinose; with exception of second ventral segment, the abdomen is impunctate; pygidial area more than twice as long as it is broad at the base. Black; abdomen entirely bright red; mandibles medially and tarsi reddish-testaceous; head, thorax, legs and abdomen beneath with long, pale pubescence; apical third of wings fuscous; marginal cell subtruncate, stigma black or testaceous. Length 11-13 mm.

♂.—Produced portion of anterior margin of clypeus truncate; first joint of flagellum about one-third longer than the second; dorsulum finely and evenly punctured throughout, the punctures finer than in *nubeculus*; sculpture of metathorax above much finer than in the ♀; pubescence colored like the ♀; last two or three abdominal segments black; wings subhyaline, stigma yellowish; tarsi reddish. Length 7-9 mm.

Canada and the entire United States. The larger females are the *A. rufiventris* Cresson, while *A. terminata* Cresson, is but a slight variation of the male.

6.—*Astatus pygidialis* Fox.*Astatus pygidialis* Fox, Can. Ent. p. 234. ♀. 1892.

♀.—Produced portion of anterior margin of clypeus subtruncate; front with tolerably strong punctures which become sparse medially and laterally; vertex with strong, sparse punctures; first joint of flagellum about one-quarter longer than the second; dorsulum punctured about like the front, perhaps a little more finely so; scutellum sparsely punctured, not impressed; upper surface of metathorax coarsely reticulated, with a prominent, longitudinal, medial ridge, at the apex is a strong depression, the metapleuræ and posterior face rugose; tibiæ and tarsi strongly spinose; abdomen scarcely punctured; pygidial area about twice as long as it is broad at the base. Black; abdomen entirely red; mandibles in middle ferruginous; tegulæ and legs testaceous; head, thorax and legs with white pubescence; wings subhyaline, the apical margins broadly fuscous; marginal cell obliquely truncate; stigma yellow. Length 8-10 mm.

New Jersey; Texas.

7.—*Astatus nevadicus* Cress.*Astata nevadica* Cr., Proc. Ent. Sect. Acad. Nat. Sciences Phila. 1881. p. V. ♀. *Astatus nevadicus* Kohl, l. c. p. 448.

♀.—Produced portion of anterior margin of clypeus subtruncate; front with deep and sparse punctures, which become closer towards the clypeus; vertex with tolerably large sparse punctures; antennæ short and stout, the first joint of flagellum scarcely one-quarter longer than the second; dorsulum very sparsely punctured, polished; scutellum likewise and not impressed; upper surface of metathorax with the reticulum tolerably coarse, but finer than in *pygidialis* or *bicolor*, depressed at the apex in the middle, and without a central, longitudinal ridge, metapleuræ coarsely striated; legs stout; tibiæ and tarsi strongly spinose; abdomen almost impunctate; pygidial area possibly a little more than twice longer than it is broad at base. Black; abdomen entirely red; mandibles medially, tegulæ and tarsi reddish testaceous; face, clypeus and dorsulum anteriorly with black pubescence; cheeks, occiput, thorax and legs with white pubescence; wings subfuscous, the apical third fuscous; marginal cell obtusely truncate. Length 8-9 mm.

♂.—Produced portion of anterior margin of clypeus as in the ♀; first joint of flagellum about one-third longer than the second; dorsulum anteriorly, finely and evenly punctured, sparsely so poster-

iorly; scutellum sparsely punctured, not impressed; upper surface of metathorax rather finely reticulated, more so than in the ♀; colored like the ♀; no black pubescence on dorsulum anteriorly nor on the face and clypeus; wings subhyaline throughout; marginal cell obliquely truncate. Length $7\frac{1}{2}$ –8 mm.

Nevada; New Mexico; Washington; Montana. The specimen from the last mentioned locality differs in having the front more closely and finely punctured.

8.—*Astatus montanus* Cress.

Astata montana Cr., Proc. Ent. Sect. Acad. Nat. Sciences, 1881, p. V, ♀.

Astatus montanus Kohl., l. c. p. 448.

♀.—Median lamina of anterior margin of clypeus long and narrow, truncate at apex; front with a few, large, scattered punctures; vertex with large, sparse punctures; first joint of flagellum about one-quarter longer than the second; dorsulum with large, scattered punctures; scutellum above impunctate, not impressed; mesopleuræ sparsely punctured; metathorax above finely granulated or indistinctly reticulated, the metapleuræ striated; legs tolerably spinose; abdomen almost impunctate; pygidial area about twice as long as it is broad at base. Black; abdomen entirely red; mandibles medially, tegulæ and legs testaceous; head, thorax and legs very sparsely clothed with black pubescence; wings subfuscous, marginal cell obtusely truncate. Length $5\frac{1}{2}$ – $7\frac{1}{2}$ mm.

Nevada; Colorado.

9.—*Astatus asper* n. sp.

♀.—Median lamina of anterior margin of clypeus strongly tridentate; front with tolerably large and sparse punctures, which become closer towards the clypeus; vertex with a few scattered punctures; first joint of flagellum more than one-quarter longer than the second; dorsulum, except anterior portion, almost impunctate; scutellum distinctly impressed; metathorax above finely granulated, the meso- and metapleuræ coarsely rugose; tibiæ and tarsi tolerably spinose; abdomen almost impunctate; pygidial area more than twice longer than it is broad at base. Black; abdomen red; mandibles medially, tegulæ and tarsi, testaceous; cheeks and thorax with a very sparse, white pubescence, that on the femora dark; apical half of wings fuscous, the marginal cell truncate. Length 7 mm.

♂.—Median lobe of clypeus produced into a sharp tooth or spur; first joint of flagellum about one-quarter longer than the second;

metathorax above finely granulated, the metapleuræ rugose; transverse mark before ocelli and tegulæ, white; apical third of wings dark fuscous. Length 9 mm.

Montana. The most satisfactory way to separate the males of this species from the male variety of *elegans*, is by the color of apical third of wings and color of humeral tubercles. This species may be but a variety of *A. Kohli* Cam. from Mexico.

10.—*Astatus elegans* Cress.

Astata elegans Cr., Proc. Ent. Sect. Acad. Nat. Sciences, Phila. 1881, p. VI, ♂.
Astatus elegans Kohl., l. c. p. 448.

♀.—Median lobe of clypeus tridentate; front with strong, sparse, irregular punctures; vertex with strong, sparse punctures, which are deeper than those of the front; first joint of flagellum more than one-quarter longer than the second; dorsulum with large, scattered punctures; dorsulum with scattered punctures, distinctly impressed; metathorax above rather strongly impressed down the middle, finely and irregularly striated, the metapleuræ more strongly striated; mesopleuræ sparsely punctured; tibiæ and tarsi rather strongly spinose; abdomen almost impunctate; pygidial area more than twice longer than it is broad at base (it is broad basally, then contracting before middle and continuing narrowly to the apex). Black; abdomen entirely red; mandibles medially and legs testaceous; tegulæ, shoulder tubercles and spot at top of mesopleuræ, white; head thorax and legs very sparsely clothed with pale pubescence; wings subhyaline, marginal cell truncate; stigma yellow. Length 8½–9 mm.

♂.—Median lobe of clypeus produced into a sharp tooth or spur; first joint of flagellum not one-quarter longer than the second; dorsulum anteriorly rather finely and closely punctured, on the posterior part sparsely so; scutellum impressed; metathorax above evidently granulated, depressed before apex, the metapleuræ rugose; in addition to the white markings of the ♀, there is a large transverse mark before the ocelli, base of wings, a spot at base of anterior and middle tibiæ, and a band near the apex of the first dorsal segment, which is sometimes interrupted medially, white; wings subhyaline, not darker apically. Length 7–9 mm.

Var. ♂.—No white markings on first abdominal segment.

Washington; Vancouver; Nevada; Colorado. The variety mentioned above may prove to be the male of *nevadicus*.

11.—*Astatus bellus* Cress.*Astata bella* Cr., *ibid.*, p. VI. ♂.*Astatus bellus* Kohl., l. c. p. 447.

♂.—Median lobe of clypeus obtuse, or truncate at tip; front rugose; first joint of flagellum about one-quarter longer than the second; dorsulum finely and closely punctured, particularly anteriorly; scutellum slightly impressed; metathorax above very finely and transversely striated, the metapleuræ coarsely so, the posterior face deeply punctured. Black; abdomen, tibiæ and tarsi, red; femora testaceous; two transverse, small spots before ocelli, mandibles medially, tegulæ, base of wings, spot before tegulæ and another at base of fore tibiæ, white; head and thorax with pale pubescence; wings hyaline, with a pale fuscous spot, which includes the marginal, second and third submarginal cells; marginal cell truncate. Length 7 mm.

San Diego, California.

2.—*Astatus caeruleus* Cress.*Astata caerulea* Cr., *ibid.*, p. IV. ♂.*Astatus caeruleus* Kohl., l. c. p. 447.

♂.—Median lobe of clypeus produced into a short tooth or spur; front closely punctured throughout; first joint of flagellum not one-quarter longer than the second; dorsulum closely punctured anteriorly, posteriorly the punctures become sparse and stronger; scutellum impressed; metathorax above rather coarsely granulated, the meso- and metapleuræ rugose. Entirely ceruleous; antennæ and greater part of legs black; head and thorax with sparse, black pubescence; tegulæ testaceous; wings dark fuscous; marginal cell truncate; abdomen ventrally strongly punctured. Length 8 mm.

Nevada.

DIENOPLUS gen. nov.

Similar in form to *Astatus*; head about as broad as the thorax; *inner eye-margins almost parallel in both sexes*; eyes beneath reaching to the base of the mandibles, *which are not emarginate on outer margin*; clypeus large, especially in the ♂, and transverse; the labrum is large and prominent, but not projecting; antennæ situated close to the clypeus, and are separated from each other by a distance much less than that between them and the nearest eye-margin, in the ♀ short and thick, in the ♂ slender and half again as long; ocelli all distinct and prominent, forming a curve; prothorax above not

reaching the level of dorsulum; shoulder tubercles separated distinctly from the tegulæ; anterior wings with an *elongate-lanceolate marginal cell, which has no appendiculation*, and three large submarginal cells, the second of which is narrowed more than one-half to the top and receives both recurrent nervures; the third submarginal cell is nearly as large as the third discoidal and scarcely narrowed at the top; stigma tolerably distinct, more so in the ♂; cubital vein of hind-wing originates beyond the apex of the submedian cell; legs tolerably stout, the tibiæ and tarsi of ♀ distinctly spinose, in the ♂ scarcely so; *middle tibiæ of both sexes with two spurs*; anterior tarsi of ♀ have a well-developed tarsal-comb, which is entirely absent in the ♂; *the hind femora are broadest between their base and middle*; claws not toothed; *metathorax above with a large, distinct triangular enclosure*; last dorsal segment of ♀, with a distinct pygidial area, the ♂ also with a pygidial area, which is much less developed.

Dienoplus seems to connect *Bothynostethus* more closely to the *Larrites*, being intermediate between *Astatus* and that genus, a fact which tends to more closely unite the *Larridæ* with the *Nyssoniidæ*. *Dienoplus* is, however, not closely related to either *Astatus* or *Bothynostethus*.

***Dienoplus pictifrons* n. sp.**

♀.—Anterior margin of clypeus slightly but broadly incurved; front finely and closely punctured, the vertex more sparsely so; behind each hind ocelli there is a deep fovea; first joint of flagellum longer than the second; dorsulum with tolerably strong and sparse punctures; scutellum not impressed; upper surface of metathorax with a large, triangular enclosure, and at the base with short, radiating striations, metapleuræ and posterior face finely striated; abdomen finely and rather sparsely punctured; pygidial area with large, sparse punctures. Black; abdomen, except a blotch on dorsal segments 4 and 5, red; mandibles medially and anterior tarsi, reddish-testaceous; scape beneath, inner orbits from the clypeus to the middle of front, anterior half of clypeus and the fore tibiæ in front, yellow; wings subhyaline. Length $7\frac{1}{2}$ mm.

♂.—Antennæ as long as head and thorax together, the first joint of flagellum about equal to the second, the last joint as long as the two preceding united; fore margin of scutellum with a row of

strong foveæ. Black; dorsal segments 1 and 3 and ventrals 2, 3 and 4, red; inner orbits below middle of front broadly, face, clypeus entirely, scape in front, four anterior tibiæ in front, and a spot near the base of the hind tibiæ, yellow; flagellum beneath fulvous. Length 6 mm.

State of Washington.

BOTHYNOSTETHUS Kohl.

Bothynostethus Kohl, Verh. zool.-bot. Gesell. Wien, p. 344, Taf. XVIII, f. 5 et 6. 1883.

Body stout; head as broad as the thorax; *eyes diverging towards the vertex; the eyes at the bottom touch the base of the mandibles, on the outer margin of which there is no emargination*; clypeus tolerably stout; antennæ placed close behind the clypeus, the distance between them being twice as great as that between them and the nearest eye-margin, and are short and stout; ocelli regularly round, convex, placed in a low triangle; top of pronotum nearly on the same level with the dorsulum, its lateral angles rounded; shoulder-tubercles not reaching to the tegulæ; wing neuration agreeing very nearly with that of the genus *Nysson*; the stigma is much larger, however, and the basal vein touches a little beyond the apex of the median cell on the discoidal vein, whilst in all the known species of *Nysson* this vein touches before the apex of the above mentioned cell; radial cell broad, lanceolate, large, almost greater than the first submarginal cell, without appendiculation; the second submarginal cell receives both recurrent nervures, *is triangular and distinctly petiolated*; the first submarginal excels by far the combined length of the second and third; the cubital vein of hind wings originates tolerably far beyond the apex of the median cell; the legs, including the tarsi are stout; *middle tibiæ with one spur*; the anterior tarsi have a very short comb, which is composed of slender spines; the remaining tarsi and tibiæ appear, with exception of the spines at apex of joints, unarmed; *the posterior femora reach their greatest breadth at the apex*, which is very rarely the case in other hymenopterous genera; claws not toothed; last dorsal segment of ♀ with a large, triangular pygidium, which is covered with short pubescence; the ♂ is similar to the ♀, except that the pygidial area is much less developed, is short and obtuse at tip.

But one Nearctic species of this genus has been described.

Bothynostethus distinctus Fox.*B. distinctus* Fox, Entom. News. II, p. 31. ♀ ♂ . 1891.

♀.—Anterior margin of clypeus bilobate medially and armed laterally with at least two strong teeth; front finely but not very closely punctured; vertex more sparsely so; flagellum subclavate, the first joint shorter than the second, which joint is about equal to the third; dorsulum punctured about like the front; scutellum impressed; metathorax above with a broad and deep, longitudinal channel, which is connected, or nearly so, with the strong depression at the base of posterior face, a little beyond the base of the upper surface is a strongly foveolate, curved furrow, which extends from side to side, with exception of these furrows the upper surface of metathorax is smooth, or finely punctured, metapleuræ strongly rugose; abdomen indistinctly punctured; pygidium large, rounded at tip. Black; line on prothorax above, tubercles, postscutellum and spot near the base of four posterior tibiæ, whitish; the whole insect more or less covered with silvery pubescence, which is most dense on head in front; wings subhyaline, apical margins broadly fuscous; last ventral segment red. Length 7–8 mm.

“ ♂.—More slender than the ♀, the anterior margin of clypeus subtruncate, or slightly sinuate; the anterior tibiæ in front, and the tarsi are rufous; pygidium short, obtuse at tip, with appressed pubescence, otherwise as in the ♀. Length .30 inch.”

New Jersey (July and August); Montana. With exception of being smaller, I can find no difference worth noting in the Montana specimens.